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VOL. XIV.

TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. XIV.

FOR THE YEAR 1872.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

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1873.

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Swayne, Joseph Griffiths, M.D.	Bristol.
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OBSTETRICAL SOCIETY OF LONDON.

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HONORARY FELLOWS.

BRITISH SUBJECTS.

Elected

1865 Bailey, Henry Woodruffe, F.R.C.S., Thetford, Norfolk.

1862 Churchill, Fleetwood, M.D., Professor of Midwifery, King's and Queen's College of Physicians, Ireland; 15, Stephen's green north, Dublin.

1862 McClintock, Alfred H., M.D., late Master of the Lying-in Hospital; 21, Merrion square north, Dublin.

1862 Duncan, James Matthews, M.D., A.M., F.R.S. Ed., Lecturer on Midwifery and Diseases of Women and Children, Surgeon's Hall; 30, Charlotte square, Edinburgh.

1870 Farre, Arthur, M.D., F.R.S., Physician Accoucheur to H.R.H. the Princess of Wales; 12, Hertford street, Mayfair.

1862 Hall, Archibald, M.D., Professor of Midwifery, University of McGill College, Montreal, Canada.

1871 Keiller, Alexander, M.D., F.R.S. Ed., Physician to the Royal Maternity Hospital, Lecturer on Midwifery and Diseases of Women and Children at the Surgical Hall, Edinburgh.

Elected

1871 KIDD, GEORGE H., M.D., F.R.C.S.I., Obstetrical Surgeon to the Coombe Lying-in Hospital, and Examiner in Midwifery at the Queen's University and Royal College of Surgeons of Ireland; 30, Merrion square south, Dublin.

1871 TRACY, RICHARD T., M.D., Physician to the Lying-in Hospital, Melbourne, Victoria.

1870 WEST, CHARLES, M.D., F.R.C.P., Physician to the Hospital for Sick Children; 61, Wimpole street, Cavendish square.

FOREIGN SUBJECTS.

1872 BARKER, FORDYCE, M.D., Professor of Clinical Midwifery and Diseases of Women at the Bellevue Hospital Medical College, and Obstetric Physician to the Bellevue Hospital; Consulting Physician to the New York State Woman's Hospital, &c.

1863 BRAUN, CARL, M.D., Professor of Midwifery, Vienna.

1862 CHANNING, WALTER, M.D., late Professor of Midwifery in the University of Cambridge, 17, Blacon-street, Boston, U.S.

1863 DEPAUL, JEAN ANNE HENRI, M.D., Professor of Clinical Midwifery, Paris.

1863 FAYE, F. C., Professor of Midwifery in the University of Christiania.

1864 HECKER, C., Munich.

1866 HUGENBERGER, THEODOR, M.D., Professor at the Maternity of Her Imp. Highness Madame the Grand Duchess Helena Pawlowna, St. Petersburgh.

1866 LAZAREWITCH, J., Kharkoff, Russia.

1863 MARTIN, EDUARD, M.D., Director of the Institute for Clinical Midwifery at the University, Berlin.

1864 PAJOT, CH., M.D., Professor of Midwifery to the Faculty of Medicine, Paris.

1866 RIZZOLI, FRANCESCO, Bologna.

Elected

1862 Scanzoni, F. W. von, M.D., Professor of Midwifery, Würzburg.

1864 Sims, J. Marion, M.D., late Surgeon to the Women's Hospital, New York.

1872 Spiegelberg, Otto, M.D., Professor of Clinical Midwifery, and Director of the Gynæcological Clinique in Breslau.

1866 Thomas, Abraham Everard Simon, Leyden.

1872 Thomas, T. Gaillard, M.D., Professor of Obstetrics in the College of Physicians and Surgeons, New York.

1862 Virchow, Rudolf, M.D., Professor of Pathological Anatomy in the University of Berlin.

ORDINARY FELLOWS.

JANUARY, 1873.

Those marked thus (*) have paid the Composition Fee in lieu of further annual subscriptions.

Elected

1869 ADAMS, THOMAS RUTHERFORD, M.D., Surgeon to the Croydon General Hospital; 1, Ottoman villas, St. James's road, West Croydon.

1872 AGNEW, JOHN NOBLE, M.D., Toronto, Ontario.

1859 ALDERSEY, William Hugh, M.B. Lond., F.R.C.S., South Hayling Island, Havant, Hants.

1871 ALDERSON, FREDERICK H., 1, Avenue terrace, Bridge Avenue, Hammersmith.

1861 ALDRIDGE, JOHN PETTY, M.D., Shirley House, Dorchester.

1859 AMSDEN, GEORGE JOHN, M.D., 85, St. Paul's road, Highbury, N.

1866 ANDREWS, HENRY CHARLES, M.D., 1, Oakley square, N.W.

1859 ANDREWS, JAMES, M.D., 149, Camden road, N.W.

1870 APPLETON, ROBERT CARLISLE, Toll Garel, Beverley.

1859 ARCHER, JOHN, F.R.C.S., 9, Carpenter road, Edgbaston, Birmingham.

1871 ARGLES, FRANK, L.R.C.P. Ed., Hermon Lodge, Wanstead, Essex.

1861 ARMSTRONG, JOHN, M.D., Gravesend, Kent.

1869 AVELING, CHARLES TAYLOR, M.B. Lond., F.R.C.S., 93, High street, Homerton, N.E.

1859 AVELING, JAMES H., M.D., Physician to the Chelsea Hospital for Women; 1, Upper Wimpole Street, W. *Council*, 1865-66, 1872. *Hon. Sec.* 1873.

Elected

1872 Ayling, Arthur H. W., 103, Great Portland street, W.

1859 Ayling, William Henry, L.R.C.P. Ed., 103, Great Portland street, W.

1864 Baker, G. Benson, 42, Grove road, St. John's wood, N.W.

1867 Baker, John C., M.D., F.R.C.S. Ed.; 132, Duke street, Liverpool.

1859 Baker, John Wright, Surgeon to the Derbyshire General Infirmary; 102, Friar gate, Derby.

1859 Ballard, Thomas, M.D., 10, Southwick place, Hyde park, W.

1859 Bannister, John Henry, 436, Oxford street, W.

1869 Bantock, George Granville, M.D., Physician to the Samaritan Free Hospital; 44, Cornwall road, Westbourne park, W.

1863 Barker, Edward, F.R.C.S., Senior Surgeon to the Melbourne Hospital, Victoria.

1859 Barnes, Robert, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, St. Thomas's Hospital; 31, Grosvenor street, W. *Vice-Pres.* 1859-60. *Council.* 1861-62, 1867-73. *Treas.* 1863-64. *Pres.* 1865-66.

1863 Barratt, Joseph G., M.D., 8, Cleveland gardens, Bayswater, W.

1871 Barrick, Eli James, M.D., Professor of Midwifery at Victoria University; 91, Bond street, Toronto, Ontario, Canada.

1861* Bartrum, John S., F.R.C.S., Surgeon to the Bath General Hospital; 41, Gay street, Bath. *Hon. Loc. Sec.*

1867 Basan, Horace, F.F.P. & S. Glasg., L.R.C.P. Ed., Prebyn, Bedford.

1866 Bassett, John, Professor of Midwifery at the Queen's College, Birmingham; 144, Hockley Hill, Birmingham.

1859 Bateman, Henry, F.R.C.S., 32, Compton terrace, Canonbury, Islington, N.

1867 Batten, Rayner W., M.D., Physician to the Gloucester General Infirmary; 1, Brunswick square, Gloucester.

Elected

1859 Battye, Richard F., M.R.C.P. Ed., 6, Gloucester street, Belgrave road, Pimlico, S.W.

1871 Beach, Fletcher, Medical Registrar, Children's Hospital, Great Ormond street, W.C.

1871 Beadles, Arthur, 11, Park road terrace, Forest hill, Kent.

1859 Beck, T. Snow, M.D., F.R.S., 7, Portland place, W.

1868 Beigel, Hermann, M.D., Lichtenstein Strasse, Vienna.

1866 Belcher, Henry, M.D., L.R.C.P. Ed.; 10, Pavilion parade, Brighton.

1871 Bell, Robert, M.D. Glasg., 50, Woodland road, Glasgow.

1867 Bennet, William Ford, Westgrove House, Emsworth, Hants.

1859 Berry, Samuel, F.R.C.S., Consulting Surgeon-Accoucheur to the Queen's Hospital, and Professor of Midwifery and the Diseases of Women and Children in the Queen's College; Hatfield House, 281, Hagley road, Edgbaston, Birmingham. *Vice-Pres.* 1859. *Hon. Loc. Sec.*

1872 Bethune, Norman, M.D., Professor of Anatomy, Trinity College, Toronto.

1859 Billinghurst, Henry, M.D., Redwood House, Bromley, Kent.

1859 Bird, Frederic, M.D., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital, Senior Physician to the Westminster Maternity Charity; 13, Grosvenor street, W. *Council*, 1859.

1868 Black, James Watt, M.D., Obstetric Physician to the Charing Cross Hospital; 15, Clarges street, Piccadilly, W. *Council*, 1872-3.

1868 Blair, John, Collins street east, Melbourne, Victoria.

1861* Blake, Thomas William, Hurstbourne Tarrant, Andover, Hants.

1859 Blake, Valentine W., F.R.C.S., Surgeon to the Birmingham and Midland Counties Lying-in Hospital; 6, Old square, Birmingham.

Elected

1872 Bland, George, Park green, Macclesfield.

1866 Blease, Thomas, Clairville, Altrincham, Cheshire.

1860 Blood, Michael, 15, Portland place, St. Helier's, Jersey.

1859 Bloxam, William, M.D., 21, Mount street, Grosvenor square, W.

1868 Boggs, Alexander, M.D., late of H.M.'s Madras Army, 13, Boulevard de Courcelles, Paris.

1872 Bosworth, John Routledge, Sutton, Surrey.

1866 Boulton, Percy, M.D., Physician for Out-patients to the Samaritan Free Hospital; 6, Seymour street, Portman square, W.

1868 Bousfield, Edward, L.R.C.P. Ed., Market place, Thetford, Norfolk.

1869 Boyd, Herbert, Assistant-Surgeon, Indian Army, Fort William, Calcutta [agents, Henry S. King and Co., 65, Cornhill].

1859 Brace, William Henry, M.D., 7, Queen's gate terrace, Kensington, W.

1872 Bracey, Charles J., M.B., Surgeon to the Birmingham and Midland Hospital for Women; Priory House, Old square, Birmingham.

1862 Braithwaite, William, M.D., late Lecturer on Midwifery, Leeds School of Medicine; Clarendon House, Clarendon road, Leeds. *Council*, 1869-70.

1862 Brickwell, John, Sawbridgeworth, Herts.

1872 Bridgewater, Thomas, M.B., Harrow-on-the-Hill.

1864 Bright, John Meaburn, M.D., The Glen, Forest hill, Sydenham, S.E. *Council*, 1873.

1869 Brisbane, James, M.D., 30, Lisson grove, N.W.

1860 Britton, William Samuel, 53, Wellington road, St. John's Wood, N.W.

1871 Brockman, Edward Forster, Assistant-Surgeon, General Hospital, Madras, and Professor of Pathology, Madras Medical College, Madras.

Elected

1866 Brodie, George B., M.D., Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon street, Mayfair, W. *Council*, 1873.

1868 Brown, Andrew, L.R.C.P. Ed., Elton villa, Bartholomew road, Kentish town, N.W.

1865 Brown, David Dyce, M.A., M.D., 22, Union place, Aberdeen.

1866 Brown, George Dransfield, Henley villa, Uxbridge road, Ealing, Middlesex.

1866 Brown, Thomas, M.D., 236, Kennington park road, S.E.

1865 Browne, J. Lennox, 41, Welbeck street, Cavendish square, W.

1865 Brunton, John, M.D., M.A., Surgeon to the Royal Maternity Charity; 21, Euston road, N.W. *Council*, 1871-3.

1866 Bryant, John Henry, 23a, Sussex square, Hyde park gardens, W.

1863 Bryant, Thomas, F.R.C.S., Surgeon to Guy's Hospital; 53, Upper Brook street, W. *Council*, 1866-67.

1859 Bryant, Walter John, F.R.C.S., L.R.C.P. Ed., 23a, Sussex square, Hyde park gardens, W. *Council*, 1859.

1870 Buck, Joseph Randle, L.R.C.P. Ed., Inkberrow, Redditch, Worcestershire.

1872 Buckingham, Charles E., M.D., Professor of Obstetrics in Harvard University; 53, Worcester street, Boston, U.S.

1871 Bulmer, Thomas Sanderson, M.D., Toronto; Taranaki street, Wellington, New Zealand.

1861 Bunny, Joseph, M.D., Hon. Surgeon to the Newbury Dispensary; Northbrook street, Newbury, Berks.

1870 Burdett, David E., M.B., Belleville, Ontario, Canada. *Hon. Loc. Scc.*

1867 Burnett, Charles, M.B., Biggleswade, Bedfordshire.

1866 Burrows, John Cordy, F.R.C.S., Consulting Surgeon to the Brighton Hospital for Sick Children; 62, Old Steyne, Brighton.

Elected

1862 Burton, John Moulden, F.R.C.S., Lee park lodge, Lee, Kent, S.E. *Council*, 1868-69.

1870 Burzorjee, Burzorjee Dorabjee, Graduate of Grant Medical College, Bombay. *Hon. Loc. Sec.*

1864 Butler, Frederick John, M.D., Surgeon to Winchester College and St. Cross Hospital, and to the Hants County Hospital, Winchester.

1870 Butler, John M., M.D., Physician to the Royal Kent Dispensary, and to the Woolwich Dispensary; 6, Queen's terrace, (28) Woolwich Common, S.E.

1868 Butler, William Harris, L.R.C.P. Ed., 15, Thomas street, Woolwich.

1868 Butt, William Frederick, 12, South street, Park lane, W.

1862 Campbell, Charles, M.D., Kingston, Jamaica. [Agent: Mr. Lewis, Gower street.]

1861 Candlish, Henry, M.D., Physician to the Alnwick Infirmary, Bondgate street, Alnwick, Northumberland.

1861 Candy, John, M.D., Assistant-Surgeon, H.M.'s 109th Regiment at Mooltan, India. [*Per* Messrs. Price and Boustead, Army Agents, 34, Craven street, Strand, W.C.]

1872 Carless, Edward Nicholls, M.B., C.M., Lansdowne grove, Devizes, Wilts.

1866 Carless, John, M.D, Stratford lodge, Stroud, Gloucestershire.

1863 Carlyle, David, M.D., 2, The Crescent, Carlisle.

1861 Carter, Albert Pleydell, Wellington House, 43, London road, Gloucester.

1872 Carter, Charles Henry, B.A., M.D., 8, Old Cavendish street, Cavendish square.

1869 Caskie, John Boyd, M.D., 89, Goswell road, E.C.

1869 Cass, William Cunningham, 20, St. George's road, S.W.

1865 Cassels, Thomas, M.D., 38, Denbigh street, Warwick square, S.W.

1870 Causton, William Henry, Hepworth lodge, Westcroft place, Hammersmith.

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1863 Cayzer, Thomas, Mayfield, Aigburth, Liverpool.

1864 Chambers, Thomas, 2a, Sutherland street, Warwick square, S.W., and 2, Bolton row, Mayfair.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 59, Old Broad street, City, E.C.

1862 Chapman, Walter, F.R.C.S., Lower Tooting, Surrey.

1867* Charles, T. Edmondstoune, M.D., Professor of Midwifery at the Calcutta Medical College, 10, Harrington street, Calcutta, *Hon. Loc. Sec.*

1865* Charlton, Egbert, M.D., Fareham, Hants.

1863 Chavasse, Pye Henry, F.R.C.S., 12, The Square, Birmingham.

1868 Child, Edwin, New Malden, Kingston-on-Thames, Surrey.

1872 Chittenden, Charles P. Downey, L.R.C.P. Ed., Assistant-Surgeon R.N., Haslar Hospital, and South Lodge, Lee park, Lee, Blackheath.

1861 Church, William John, F.R.C.S., 22, Circus, Bath.

1859 Claremont, Claude Clarke, Millbrook House, 1, Hampstead road, N.W.

1861 Clark, James, M.D., 57, Regent's park road, N.W.

1859 Clark, James Fenn, 18, York terrace, Leamington. *Hon. Loc. Sec.*

1862 Clarke, John, Lynton, North Devon.

1872 Clarke, William Michell, late Surgeon to the British General Hospital; 2, York buildings, Clifton, Bristol.

1859 Clay, Charles, M.D., late Lecturer on Midwifery and Clinical Medicine in St. Mary's Hospital, Manchester; Andenshaw Lodge, Andenshaw, near Manchester, and 101, Piccadilly, Manchester. *Council*, 1863-65.

1859 Clay, John, Professor of Midwifery, Queen's College, Birmingham; Allan House, 138-9, Steelhouse lane, Birmingham. *Council*, 1868-69. *Vice-Pres.* 1872-3.

1859 Clayton, Oscar, F.R.C.S., Extra Surgeon-in-Ordinary to H.R.H. the Prince of Wales, and Surgeon-in-Ordinary to H.R.H. the Duke of Edinburgh, 5, Harley street, W.

Elected

1859 Cleveland, William Frederick, M.D., Stuart villa, 199, Maida vale, W. *Council*, 1863-64.

1861 Clogg, Stephen, East Looe, Cornwall.

1865* Coates, Charles, M.D., Physician to the Bath United General Hospital; 10, Circus, Bath.

1860 Cockell, Edgar, Holly lodge, Forest road, Dalston, N.E.

1859 Cockell, Frederick Edgar, 1, Alma villas, Dalston, N.E.

1861 Collingwood, William, 15, St. Thomas's street, Southwark, S.E.

1866 Coombs, James, M.D., Bedford.

1864 Cooper, George Henry C., M.D., Surgeon to the Holloway and N. Islington Dispensary; Surgeon-Accoucheur to the Royal Maternity Charity; 35, Compton terrace, Islington, N.

1861 Cooper, John, M.R.C.P. Ed., Clapham rise, S.W.

1872 Coote, Michael, M.D., Quebec, Canada (and Grangewood Lodge, Burton-on-Trent).

1865 Copeman, Edward, M.D., Physician to the Norfolk and Norwich Hospital; Upper King street, The Close, Norwich. *Council*, 1869-71. *Vice-Pres.*, 1873. *Hon. Loc. Sec.*

1866 Cornwall, James, F.R.C.S., Fairford, Gloucestershire.

1860 Corry, Thomas Charles Steuart, M.D., L.R.C.P. Ed., Senior Surgeon to the Belfast General Dispensary; 9, Clarendon place, Belfast. *Council*, 1867. *Hon. Loc. Sec.*

1859 Cory, Frederick Charles, M.D., Portland villa, Buckhurst hill, Essex. *Council*, 1867-69.

1863 Coward, John W., Christchurch, Canterbury, New Zealand [agents : Messrs. Alfred Hill and Sons, 11, Little Britain]. *Hon. Loc. Sec.*

1869 Cox, Richard, L.R.C.P. Ed., Theale, near Reading.

1870 Craigie, John, M.D., 2, West Cliff cottages, Lyme Regis, Dorset.

1859 Croft, J. McGrigor A. T., M.D., M.R.C.P., 8, Abbey road, St. John's Wood, N.W.

1866 Croft, Robert Charles, L.R.C.P. Ed., 204, Camden road, N.W.

Elected

1861 Croskery, Hugh, L.R.C.S. Ireland; Clerk in Holy Orders, Government Medical Officer, Chapelton, Jamaica [agents: Messrs. Burgoyne, Burbidges and Squire, 16, Coleman street, E.C.].

1860 Cross, Richard, M.D., 5, Queen street, Scarborough, Yorkshire.

1869 Cross, Robert Shackleford, Petersfield, Hants.

1867 Croucher, Henry, West Hill, Dartford, Kent.

1859 Culpeper, William Moe, 1, Brunswick terrace, Palace gardens, Kensington, W.

1862 Cumberbatch, Laurence Trent, M.D., 25, Cadogan place, Belgrave square, S.W. *Council*, 1868-70.

1867 Cuolahan, Hugh, M.D., 9, Grange road, Bermondsey, S.E.

1859 Curgenven, J. Brendon, 11, Craven hill gardens, Bayswater, W. *Council*, 1870-72.

1868 Daly, Frederick Henry, M.D., 101, Queen's road, Dalston, N.E.

1870 Daniel, William Abbot, Kingston-on-Thames.

1859 Davis, John Hall, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women and Children at, the Middlesex Hospital; Physician to the Royal Maternity Charity; Consulting Physician-Accoucheur to the St. Pancras Infirmary; 24, Harley street, Cavendish square, W. *Council*, 1859, 1864-65, 1869-73. *Vice-Pres.* 1861-63. *Pres.* 1867-68.

1863 Davis, Robert Alex., M.D., L.R.C.P. Ed. (exam.), Resident Physician, County Asylum, Burntwood, near Lichfield, Stafford.

1859 Day, William Henry, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873.

1866 Deans, John, 282, New Cross road, S.E.

1861 De la Motte, Henry D. C., Swanage, Dorset.

1869 Dempsey, Joseph Maldon, M.D., 27, Charterhouse square, E.C.

Elected

1872 Denton, George Bagster, Surgeon to the Ladies' Charity and Lying-in Hospital; 2, Abercromby square, Liverpool.

1860 Dickenson, John, F.R.C.S., Hon. Surgeon to the Wrexham Infirmary; Wrexham, Denbighshire.

1859 Dickson, Joseph, M.D., 56, Bath street, Jersey.

1859 Dixon, John, M.D., 108, Grange road, Bermondsey, S.E.

1859 Drage, Charles, M.D., Hatfield, Herts. *Council*, 1861-4.

1859 Druitt, Robert, M.R.C.P., 37, Hertford street, Mayfair, W. *Council*, 1859-60. *Vice-Pres.* 1862-64.

1859 Druitt, William, F.R.C.S., Wimborne, Dorset.

1859 Duncan, James, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873.

1859 Duncan, Peter Charles, M.D., 32, New Cross road, Hatcham, S.E.

1867 Dunderdale, William, M.D., 80, Buttermarket street, Warrington, Lancashire.

1859 Dunn, Robert, F.R.C.S., 31, Norfolk street, Strand, W.C. *Council*, 1860. *Vice-Pres.* 1861-62.

1871 Eastes, George, M.B., F.R.C.S., Surgeon-Accoucheur to the Western General Dispensary; 5, Albion place, Hyde park square, W.

1866 Easton, John, M.D., 20, Connaught square, Hyde park, W.

1867 Edis, Arthur W., M.D., Assistant-Physician to the Hospital for Women, Soho Square; Physician to the British Lying-in Hospital; 23, Sackville street, W. *Council*, 1873.

1862 Ellis, Edward, M.D., Physician to the Victoria Hospital for Children; 28, Chapel street, Grosvenor place, S.W.

1861 Ellis, Robert, Obstetric Surgeon to the Chelsea, Brompton, and Belgrave Dispensary; 63, Sloane street. S.W. *Council*, 1868-70.

1862 Ellison, James, M.D., Surgeon to H.M.'s Household, Windsor; 14, High street, Windsor, Berks. *Council*, 1873.

Elected

1871 Evans, Thomas Walter, 101, Heyworth street, Everton, Liverpool.

1865 Fairbank, Thomas, M.D., Surgeon to H.M. the Queen and the Royal Household, Windsor Castle ; Moulsey House, Sheet street, Windsor, Berks.

1859 Faircloth, Richard, F.R.C.S., Newmarket, Cambridgeshire.

1867 Fairland, Edwin James, L.R.C.P. Ed., Staff Assistant-Surgeon, 21st Hussars, Lucknow, Oude [*per* Horace E. Golding, Esq., 1, Frederick's place, Old Jewry].

1869 Farquhar, William, M.D., Surgeon, and Assistant Garrison-Surgeon, Bangalore, East Indies [94, Earl's court road, Kensington].

1861 Farr, Geo. F., L.R.C.P. Ed., 20, West square, Southwark, S.E.

1868 Fegan, Richard, M.D., 1, Charlton park terrace, Old Charlton, Kent.

1872 Fergusson, Alexander, F.R.C.S. Ed., Briarbank, Peebles, N.B.

1859 Fergusson, Sir William, Bart., F.R.C.S., F.R.S., Sergeant-Surgeon to H.M. the Queen, Professor of Surgery in King's College and Surgeon to King's College Hospital, Consulting Surgeon to the Samaritan Free Hospital ; 16, George street, Hanover square, W. *Vice-Pres.* 1862-63.

1869 Fergusson, William Edward Laing, M.D., 45, Claremont square, Pentonville, N.

1872 Fernie, Henry Mortlock, Park green, Macclesfield, Cheshire.

1861 Fetherston, Gerald H., M.D., L.R.C.P. Ed. ; Hon. Physician to the Melbourne Lying-in Hospital, Prahran, Melbourne, Victoria. *Hon. Loc. Sec.*

1872 Field, Albert Frederick, 18, Thistle street, and Marechal College, Aberdeen.

1860 Fisher, C. Holdrich, M.D., Sittingbourne, Kent.

1870 Fisher, John Moore, M.D., 29, Norfolk street, and 33, Arundel street, Strand, W.C.

Elected

1868 Fletcher, Edward, Lygon street, Carlton, Melbourne, Victoria.

1865 Fowler, James, F.S.A., Hon. Surgeon to the Clayton Hospital and Wakefield General Dispensary; 13, South Parade, Wakefield. *Council*, 1872-3. *Hon. Loc. Sec.*

1866 Fox, Cornelius Benjamin, M.D., Penquite lodge, South Cliff, Scarborough.

1872 Fox, Edward Charlton, M.D., Bloomsbury, Birmingham.

1862 Frain, Joseph, M.D., Hon. Surgeon to the South Shields Dispensary; Frederick street, South Shields.

1861 Frankland, Thomas Thrush, Surgeon to the Ripon Dispensary, North House, Ripon, Yorkshire.

1867 Freeman, Henry W., 24, Circus, Bath.

1867 Fryer, Charles, L.K.Q.C.P. Ireland; Richmond place, Higher Openshaw, Manchester.

1867 Fuller, Charles C., 29, Albany street, Regent's park, N.W.

1863 Galton, John H., M.D., Three Oak villa, Thicket road, Upper Norwood, S.E.

1872 Gardner, W., M.A., M.D., 470, St. Joseph street, Montreal.

1863 Garman, Henry Vincent, Kent House, Bow road, E.

1859 Gaskoin, George, 7, Westbourne park, W. *Council*, 1870-72.

1869 Geikie, Walter B., M.D., F.R.C.S. Ed., Professor of the Principles and Practice of Medicine in the University of Trinity College, Toronto, Ontario, Canada.

1859 Gervis, Henry, M.D., Assistant Obstetric Physician to, and Lecturer upon Forensic Medicine at, St. Thomas's Hospital; Consulting Physician to the Deaf and Dumb Asylum, and to the Asylum for Fatherless Children; 13, St. Thomas's street, Southwark, S.E. *Council*, 1864-66. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3.

1866 Gervis, Frederick Heudebourck, 1, Fellowes road, Hampstead, N.W.

1866 Giddings, William Kitto, L.R.C.P. Ed., Shaftesbury House, Calverley, near Leeds, Yorkshire.

Elected

1860 GILL, SAMUEL LAWRENCE, L.R.C.P. Ed., 4, Campbell terrace, Bow road, E.

1869 GILL, WILLIAM, 43, Woburn place, Russell square, W.C.

1867 GITTINS, JOHN, L.R.C.P. Ed., St. Olave's Union, Parish street, Southwark, S.E.

1871 GODDARD, EUGENE, 27, Pentonville road, N.

1869 GODDEN, JOSEPH, L.K.Q.C.P. Ireland; Dusseldorf.

1871 GODSON, CLEMENT, M.B. and C.M., Senior Obstetric Assistant at St. Bartholomew's Hospital; 56, Maddox street, Bond street, W.

1868 GODWIN, ASHTON, M.D., 11, Pelham crescent, Brompton, S.W.

1872 GORNALL, JOHN HANKINSON, Surgeon to the Warrington Dispensary; Beech House, Winwick street, Warrington.

1861 GOSS, SAMUEL DAY, M.D., F.R.G.S., 111, Kennington park road, S.E. *Council*, 1871-3.

1869 GOSS, TREGENNA BIDDULPH, 31, The Paragon, Bath.

1861 GREAM, GEORGE THOMPSON, M.D., F.R.C.P., Physician-Accoucheur to H.R.H. the Princess of Wales; 2, Upper Brook street, Grosvenor square, W. *Council*, 1862-63. *Vice-Pres.* 1864-66.

1859 GREENHALGH, ROBERT, M.D., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital; Consulting Physician to the Samaritan Free Hospital, and to the City of London Lying-in Hospital; 72, Grosvenor street, W. *Council*, 1863, 1867-69. *Vice-Pres.* 1864-66.

1863 GRIFFITH, G. DE GORREQUER, Physician to the Hospital for Women and Children, Pimlico; Physician-Accoucheur to St. Saviour's Maternity; 9, Lupus street, St. George's square, S.W.

1869 GRIFFITH, JOHN T., M.D., Talfourd House, Camberwell.

1859 GRIFFITH, THOMAS TAYLOR, F.R.C.S., Consulting Surgeon to the Wrexham Infirmary; Wrexham, Denbighshire. *Council*, 1870-72.

Elected

1870 Grigg, William Chapman, M.D., Physician to Queen Charlotte's Lying-in Hospital; 6, Curzon street, May fair.

1859 Grimsdale, Thos. F., L.R.C.P. Ed., Consulting Surgeon to the Lying-in Hospital, and late Lecturer on Diseases of Children, &c., at the Royal Infirmary School of Medicine; 29, Rodney street, Liverpool. *Council*, 1861-62.

1870 Gross, Reuben, M.D. [care of Messrs. J. and A. Macmillan], St. John's, New Brunswick, Canada.

1865 Gwyn, George F., Westcroft House, Hammersmith, W.

1867 Hadaway, James, L.R.C.P. Ed., 47B, Welbeck street, Cavendish square, W.

1859 Haden, Francis Seymour, F.R.C.S., 62, Sloane street, S.W. *Council*, 1861-63, 1868-70. *Vice-Pres.* 1865-67.

1859 Hall, Alfred, M.D., Senior Physician to the Brighton Dispensary; 30, Old Steyne, Brighton. *Council*, 1864-65. *Vice-Pres.* 1866-68. *Hon. Loc. Sec.*

1859 Hall, Frederick, 1, Jermyn street, St. James's, S.W.

1867 Hall, John Henry Wynne, L.R.C.P. Ed., 6, Portland place, (118) Wandsworth road, S.W.

1862 Hall, William, Lecturer on Physiology and Diseases of Women and Children, Leeds School of Medicine; Hillary place, Leeds. *Hon. Loc. Sec.*

1871 Hallowes, Frederick B., Redhill, Reigate, Surrey.

1860 Hardey, Key, Surgeon to the West City Dispensary; 4 Wardrobe place, Doctors' Commons, E.C.

1869 Hardinge, Henry, M.D., Physician to the Great Northern Hospital; 18, Grafton street, Bond street, W.

1872 Hardyng, William, F.R.C.S., 4, Percy street, Bedford square, W.C.

1859 Harper, Philip H., F.R.C.S., 30, Cambridge street, Hyde park, W.

1859 Harrinson, Isaac, F.R.C.S., Castle street, Reading, Berks, *Council*, 1862-65. *Hon. Loc. Sec.*

Elected

1862 HARRIS, CHARLES, M.D., Northiam, Ashford, Kent.

1871 HARRIS, CHARLES JAMES, 54, Broad street, Golden square, W.

1872 HARRIS, HENRY, M.D., F.R.C.S., Trengweath place, Redruth, Cornwall.

1861 HARRIS, HERBERT ROBEY, 52, Bolton street, Bury, Lancashire.

1867 HARRIS, WILLIAM H., M.D., Professor of Midwifery in the Madras Medical College, and Superintendent of the Lying-in Hospital, Madras [agent: Mr. H. K. Lewis, Gower street].

1861 HARRIS, WILLIAM JOHN, 13, Marine Parade, Worthing.

1865 HARVEY, ROBERT, M.D., Civil Surgeon of Bhurtpore, near Agra, India [*viâ* Bombay]. [Per Alex. Harvey, M.D., 228, Union street, Aberdeen.]

1859 HARVEY, WILLIAM, 48, Lonsdale square, Islington, N.

1861 HAVILAND, EDWARD SAVAGE, M.D., 466, Edgware road, W.

1868 HAY, THOMAS BELL, L.R.C.P. Ed.; 43, Caledonian road, N.

1865 HAYES, HAWKESLEY ROCHE, Basingstoke, Hants.

1862 HAYMAN, CHARLES CHRISTOPHER, M.D., 22, Grand Parade, Eastbourne, Sussex.

1864 HEAD, EDWARD, M.B., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; 91, Harley street, W. *Council*, 1870-71.

1867 HEMBROUGH, JOHN WILLIAM, Waltham, Grimsby.

1869 HEMSTED, HENRY, Whitchurch, Hants.

1870 HENDERSON, ALEXANDER, 2, Meadow Bank place, Rose vale, Partick, Glasgow.

1860 HESS, AUGUSTUS, M.D., Physician to the Jews' Hospital, Norwood; 14, Artillery place, Finsbury square, E.C.

1859 HEWITT, GRAILY, M.D., F.R.C.P., Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865-66. *Vice-Pres.* 1867-68. *Pres.* 1869-70. *Council*, 1871-73.

Elected

1862 Hewitt, Tom Smith, M.D., Ivy Cottage, Winkfield, Windsor, Berks.

1867 Hickinbotham, James, L.R.C.P. Ed., 10, Park road, Nechells, Birmingham.

1860 Hicks, John Braxton, M.D., F.R.C.P., F.R.S., Physician-Accoucheur to, and one of the Lecturers on Midwifery and the Diseases of Women and Children at, Guy's Hospital; Physician to the Royal Maternity Charity; 24, George street, Hanover square. *Council*, 1861-2, 1869, 1873. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2.

1860 Higgs, Thomas Frederic, L.R.C.P. Ed., 194, High street, Dudley, Worcestershire.

1872 Hilliard, Robert Hancy, M.D., 5, Belgrave terrace, Upper Holloway, N.

1868 Hime, Thomas Whiteside, M.B., 217, Glossop road, Sheffield.

1865 Hodder, Edward M., M.D., Lecturer on Obstetrics, Toronto School of Medicine; Toronto, Canada West. *Hon. Loc. Sec.*

1859 Hodges, Richard, M.D., F.R.C.S., 103, Gloucester place, Portman square, W.

1864 Hoffmeister, William Carter, M.D., Surgeon to the Queen in the Isle of Wight; Clifton House, Cowes, Isle of Wight.

1871 Hogg, Francis Roberts, M.D., Assistant-Surgeon Royal Artillery, Woolwich.

1859 Holman, Constantine, M.D., Reigate, Surrey. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1860 Holman, Henry Martin, M.D., Hurstpierpoint, Sussex.

1864 Hood, Wharton Peter, M.D., 65, Upper Berkeley street, Portman square, W.

1872 Hope, William, M.D., Physician to Queen Charlotte's Lying-in Hospital; 5, Bolton row, Mayfair, W.

1866 Horniblow, Richard E. Brain, M.D., 24, Lansdowne place, Leamington.

Elected

1861 Horton, George Edward, Castle street, Dudley, Worcestershire.

1864 Houghton, Henry George, L.K.Q.C.P. Ireland; 6, Mount street, Grosvenor square, W.

1872 Hunt, Albert, Bridge road, Hammersmith.

1859 Hutchinson, Jonathan, F.R.C.S., Surgeon to the London Hospital; 4, Finsbury circus, E.C. *Council*, 1869-71.

1870 Huthwaite, Charles, L.R.C.P. Ed., Alfred street central, Nottingham.

1861 Hutton, Charles, M.D., Physician to the General Lying-in Hospital; 26, Lowndes street, Belgrave square, S.W.

1859 Ilott, James William, Bromley, Kent.

1859 Image, William Edmund, F.R.C.S., Senior Surgeon to the Suffolk General Hospital; Bury St. Edmund's, Suffolk. *Council*, 1870-72.

1870 Izod, Freeman, Fletcher House, Tottenham, Middlesex.

1864 Jackson, Edward, M.B., Surgeon to the Sheffield Hospital for Women; Fern Bank, Glossop road, Sheffield.

1864 Jackson, Robert, M.D., 53, Notting hill square, W.

1872 Jalland, Robert, Horncastle, Lincolnshire.

1868 James, Alfred, M.D., Perry vale, Forest hill, S.E.

1872 James, Edwin Matthews, Surgeon to the Melbourne Hospital, Victoria; 169, Collins street east, Melbourne.

1859 James, Henry, F.R.C.S., Elmhurst, Weybridge, Surrey. *Council*, 1862-63.

1862 Jay, Frederick Fitzherbert, Yuso villa, South Cliff, Scarboro', Yorkshire.

1863 Jenkins, Robert W., 13, Charlotte street, Bedford square, W.C., and 22, Philpot lane, E.C.

1859 Jennings, Joseph C. S., Abbey House, Malmesbury, Wilts.

1860 Jepson, Henry, F.R.C.S., Surgeon to the Kingston Dispensary; Hampton, Middlesex, S.W.

1861 Jones, Edward, M.D., The Park, Sydenham, Kent.

Elected

1868 JONES, EVAN, Ty-Mawr, Aberdare, Glamorganshire.

1859 JONES, GEORGE, 12, New Hall street, Birmingham.

1868 JONES, JOHN, 60, King street, Regent street, W.

1866 JONES, ROBERT, 19, Stretford road, Hulme, Manchester.

1870 JONES, WILLIAM, Greenfield House, Glynneath, Neath, Glamorganshire.

1868 JORDAN, WILLIAM ROSS, Manor House, Moseley, near Birmingham.

1867 JUNKER, F. ETHELBERT, M.D.

1859 KEELE, GEORGE THOMAS, 81, St. Paul's road, Highbury, N.

1872 KENNEDY, JOHN EDWARD, M.B., Lecturer on Medical Jurisprudence, Trinity College, Toronto.

1865* KERNOT, GEORGE CHARLES, M.D., 3, Chrisp street, Poplar, E.

1872 KERR, NORMAN S., M.D., Markyate street, near Dunstable, Beds.

1859 KIALLMARK, HENRY WALTER, 66, Prince's square, Westbourne grove, W.

1869 KINGSFORD, C. DUDLEY, M.D., Upper Clapton, N.E.

1860 KINGSFORD, EDWARD, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury, Middlesex.

1862 KIRKPATRICK, JOHN RUTHERFORD, M.B. Dubl., Examiner in Midwifery, Royal College of Surgeons, Ireland; 32, Rutland square, Dublin. *Council*, 1872-3.

1872* KISCH, ALBERT, 2, Circus place, Finsbury, E.C.

1867 KNAGGS, HENRY GUARD, M.D., 72, Kentish Town road, N.W.

1872 KONRÁD, MARK, M.D., The Vienna Hospital, Vienna, Austria.

1867 LANGFORD, CHARLES P., 187, Goswell road, E.C.

1859 LANGMORE, JOHN CHARLES, M.B., F.R.C.S., 20, Oxford terrace, Hyde park, W. *Council*, 1861-64. *Vice-Pres.* 1869-71.

1866 LANGSTON, THOMAS, L.R.C.P. Ed., 29, Broadway, Westminster, S.W.

Elected

1862 Lanphier, Richard, M.B. Dubl., Alford, Lincolnshire.

1872 Lattey, James, 26, Upper Phillimore place, Kensington, W.

1867 Leaf, Walter, Surgeon to the St. Marylebone General Dispensary; 14, Furnival's Inn, Holborn, E.C.

1859 Lee, Newton B. C., 26, Hanley road, Hornsey rise, N.

1859 Leech, Edward, Pallant, Chichester, Sussex.

1860 Leishman, William, M.D., Physician to the University Lying-in Hospital, Regius Professor of Midwifery in the University of Glasgow; 156, Bath street, Glasgow. *Council*, 1866-68. *Vice-Pres.* 1869-70.

1872 Leonard, Crosby, Surgeon to the Bristol Royal Infirmary; Rockleigh House, White Ladies road, Bristol.

1868 Leslie, William Burnup, M.D., Stonehaven, Kincardineshire.

1870 Ligertwood, John, M.D., late Assistant-Surgeon, R.N., China Expedition; Methlick, Aberdeenshire.

1868 Llewellyn, Evan, L.R.C.P. Ed., 9, Mount place, London Hospital, E.

1872* Lock, John Griffith, M.A., Lansdowne House, Tenby.

1859 Locock, Sir Chas., Bart., M.D., F.R.C.P., 26, Hertford street, Mayfair, W. *Honorary President.*

1859 Lombe, Thomas Robert, M.D., Bemerton, Torquay.

1870 Long, Mark, M.D., Surgeon to the Poplar Hospital; 93, Richmond road, Dalston, N.E.

1861 Love, Gilbert, Wimbledon, Surrey, S.W.

1866 Lovegrove, Charles, M.D., 18, Westbourne place, Eaton square, S.W.

1872 Lovegrove, James F., Ightham, Sevenoaks, Kent.

1862 Lowe, George, F.R.C.S., Burton-on-Trent, Staffordshire.

1869 Lowndes, Frederick Walter, 62, Mount Pleasant, Liverpool.

1866 Lucey, William Cubitt, M.D., Norfolk villas, Junction road, Upper Holloway, N.

1869 Lydall, Wykeham H., L.R.C.P. Ed., 19, Mecklenburgh square, W.C.

Elected

1868 Lynch, J. Roche, 41, Chepstow villas, Westbourne grove.

1871 McBeath, William, M.D., Long street, Atherstone, Warwickshire.

1871 McCallum, Duncan Campbell, M.D., Professor of Midwifery and Diseases of Women and Children, McGill University; Physician to the University Lying-in Hospital; and Physician to the Montreal General Hospital; Montreal, Canada.

1871 M'Conkey, Thomas Clarkson, M.D., McGill Univ., M.R.C.S.E; Barrie, Ontario, Canada.

1859 Mackinder, Draper, M.D., Consulting-Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3.

1872 McMonagle, Joseph, M.D., New Brunswick, Dominion of Canada.

1872 MacMordie, William Kirkpatrick, M.D., 1 College square east, Belfast.

1861 McVeagh, Dennis, L.K.Q.C.P. Ireland, 33, Bishop street, Coventry, Warwickshire.

1866 Maddever, John Coombe, M.D., 19, Battery place, Rothesay.

1859 Madge, Henry M., M.D., 32, Fitzroy square, W. *Council*, 1863-65. *Vice-Pres.* 1872-3.

1871 Malins, Edward, M.D., 8, Old Square, Birmingham.

1871 Manby, Alan Reeve, East Rudham, Brandon, Norfolk.

1868 March, Henry Colley, M.D., 2, West street, Rochdale.

1860 Marley, Henry Frederick, Padstow, Cornwall.

1859 Marley, Richard, Bromyard, near Worcester, Herefordshire.

1869 Marriott, Osborne Delane, M.B., C.M., Sevenoaks, Kent.

1862 Marriott, Robert Buchanan, Swaffham, Norfolk.

1859 Marshall, John Brake, Nightingale road downs, Clapton, N.E.

Elected

1871 Martin, Edward, Senior Surgeon to the Weston-super-Mare Hospital; Victoria House, Weston-super-Mare.

1864 Martin, Lawrence J., M.D., Physician to the Melbourne Lying-in Hospital; 126, Collins street east, Melbourne, Victoria.

1871 Mathias, David, Pendre, Cardigan, South Wales.

1866 Mattei, Antoine, M.D., Professor of Midwifery, Rue Thérèse 4, Paris.

1861 Matthews, John, M.D., 4, Mylne street, Myddelton square, E.C.

1867 May, Henry, L.R.C.P. Lond., Fairfield House, Lichfield road, Aston, Birmingham.

1859 Meadows, Alfred, M.D., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Mary's Hospital; Physician to the Hospital for Women, Soho square; 27, George street, Hanover square, W. *Council*, 1862-64. *Hon. Sec.* 1865-66. *Hon. Lib.* 1865. *Treas.* 1867-69.

1872 Mendenhall, George, M.D., Cincinnati, Ohio, U.S.

1867 Mickley, Arthur George, M.B. Lond., late House Surgeon, General Hospital, 39, Derby road, Nottingham.

1871 Miller, Hugh, M.D., Assistant-Physician to the Maternity Hospital, Glasgow; 463, St. Vincent street, Glasgow.

1871 Miller, John Faure, 28, Rue de Matignon, Faubourg St. Honoré, Paris. *Hon. Loc. Sec.*

1869 Milward, James, 62, Crockherbtown, Cardiff.

1869 Minns, Pembroke R. J. B., M.D., Thetford, Norfolk.

1859 Mitchell, Joseph Thomas, F.R.C.S. [8, Percy place], 176, Clapham road, S.W. *Council*, 1863-67.

1867 Mitchell, Robert Nathal, M.D., 1, Amersham park villas, New Cross, Kent.

1872 Mondelet, William H., M.D., 776, Craig street, Montreal.

1868 Moodelly, P. S. Mootoosawmy, M.D., Native Surgeon, Uncovenanted Service, Madras, Manargoody, Tanjore.

Elected

1871 Moodelly, Chittathore Banloo, Graduate in Medicine and Surgery of the Madras Medical College; Officiating Gillah Surgeon, of Cochin; Trichinopoly.

1869 Moore, Joseph, M.D., 9, Linden villas, Blue Anchor road, Bermondsey, S.E.

1859 Moorhead, John, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1863 Morgan, Edward, 15, Park street, Llanelly, Caermarthenshire.

1869 Morgan, W. H., Surgeon 23rd Regiment, Tinilon, Travancore.

1871 Morrison, John R., L.R.C.P. Ed., 57, Cannon street road, E.

1865 Moseley, George, F.R.C.S., 51, Priory road, Kilburn, N.W.

1859 Murray, Gustavus Charles P., M.D., Obstetric Physician to the Great Northern Hospital; 17, Green street, Grosvenor square, W. *Council*, 1864-65. *Hon. Sec.* 1866-69. *Vice Pres.* 1870-72. *Treas.* 1873.

1859 Musgrave, Johnson Thomas, L.R.C.P. Ed., Irlam villa, 39, Finchley road, N.W. *Council*, 1859-60.

1859 Napper, Albert, Broad Oak, Cranleigh, Guildford, Surrey. *Council*, 1866-68

1863 Nason, John James, M.B. Lond., 11, Bridge street, Stratford-on-Avon.

1859 Nason, Richard Bird, Nuneaton, Warwickshire.

1859 Neal, James, M.D., late Hon. Surgeon to the Lying-in Hospital, Birmingham; Sandown, Isle of Wight.

1866 Neild, James Edward, M.D., Lecturer on Forensic Medicine, Melbourne University; 166, Collins street east, Melbourne.

1859 Newman, William, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Northamptonshire. *Council*, 1873.

Elected

1859 Newton, Edward, F.R.C.S., 4, Upper Wimpole street, W. *Council*, 1865-67.

1872 Niblett, Francis D., L.R.C.P. Ed., The Grove, Hackney, N.

1868 Nicholls, James, M.D., Duke street, Chelmsford, Essex.

1861 Nichols, George W., Augusta House, Rotherhithe, S.E.

1869 Norton, Selby, M.D., Rye House, Putney hill, Surrey.

1868 Oates, Parkinson, M.D., 164, Cambridge street, Pimlico, S.W.

1859 Oldham, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to Guy's Hospital; 4, Cavendish place, Cavendish square, W. *Vice-Pres.* 1859. *Council*, 1860, 1865-1866, 1868-73. *Treas.* 1861-62. *Pres.* 1863-64.

1859 Oldham, James, F.R.C.S., Consulting-Surgeon to the Brighton Lying-in Institution; 53, Norfolk square, Brighton. *Council*, 1866-68.

1869 Ord, George Rice, Streatham hill, Surrey.

1863 Oswald, James Waddell Jeffries, L.R.C.P. Ed., 245, Kennington road, S.E.

1869 Oxley, Martin G. B., L.K.Q.C.P. Ireland, 80, Rodney street, Liverpool.

1859 Palfrey, James, M.D., Assistant-Obstetric Physician to the London Hospital; Physician to the General Lying-in Hospital, York road; 18, Finsbury square, E.C.

1867 Parks, John, The Wylde, Bury, Lancashire.

1872 Parr, George, 18, Upper Phillimore place, Kensington, W.

1865* Paterson, James, M.D., Hayburn Bank, Partick, Glasgow.

1860 Payne, Charles Henry, M.D., Wimbledon, Surrey.

1866 Peacock, Albert Louis, Townfield House, Great Harwood, Accrington.

1864 Pearson, David Ritchie, M.D., 23, Upper Phillimore place, Kensington, W.

1871 Pedler, George Henry, 6, Trevor terrace, Rutland gate, S.W.

Elected

1859 Peirce, Richard King, Surgeon to the Notting hill and Shepherd's Bush Dispensary, 16, Norland place, Notting hill, W.

1871 Perrigo, James, M.D., 591, St. Catherine street, Montreal, Canada.

1866 Phillips, John J., M.D., Assistant-Obstetric Physician to Guy's Hospital; Assistant-Physician to the Hospital for Sick Children; Physician to the Royal Maternity Charity; 26, Finsbury square, E.C. *Hon. Lib.* 1870. *Hon. Sec.* 1871-3.

1871 Philps, Philip George, 4, Queen's road, Peckham, S.E.

1866 Pilcher, William John, 43, High street, Boston, Lincolnshire.

1859 Pinchard, Benjamin, M.D., Cottenham, Cambridgeshire.

1868 Playfair, George Ranken, M.D., Deputy Inspector-General, H.M.'s Indian Army. [Care of C. S. Leekie, Esq., 2, East India avenue, E.C.]

1864 Playfair, W. S., M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; 5, Curzon street, Mayfair, W. *Council*, 1867. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.*, 1873.

1859* Pollard, William, Surgeon to the Torbay Hospital; Southlands, Torquay, Devon.

1860 Pollock, Timothy, M.D., 26, Hatton Garden, E.C. *Council*, 1866-68.

1860 Porter, Charles, 54, Digbeth, Birmingham.

1864 Potter, John Baptiste, M.D., Assistant-Obstetric Physician to the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-3.

1859 Pound, George, Odiham, Hants.

1863 Powell, Josiah T., M.D., 347, City road, E.C.

1864 Price, William Nicholson, Lecturer on Midwifery at the Leeds School of Medicine; 7, East parade, Leeds.

1863 Price, William Preston, M.D., Surgeon to the Metropolitan Infirmary for Scrofulous Children, Margate; 1, Ethelbert Crescent, Margate.

Elected

1859 Priestley, William O., M.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; and Consulting Physician-Accoucheur to the St. Marylebone Infirmary; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69.

1859 Radford, Thomas, M.D., Consulting Physician to St. Mary's Hospital, Manchester; Moor field, Higher Broughton, Manchester. *Vice-Pres.* 1859.

1859 Ramsay, John Allen, L.R.C.P. Ed., Great Shelford, Cambridge.

1859 Randall, John, M.D., Lecturer on Medical Jurisprudence, St. Mary's Hospital Medical School; Medical Officer, St. Marylebone Infirmary; 35, Nottingham place, W.

1872 Rankin, William Baily, Surgeon to Prince Alfred Hospital; High street, St. Kilda, Melbourne.

1860 Ransom, Robert, M.D., F.R.C.S., 5, Jesus lane, Cambridge.

1861 Rasch, Adolphus A. F., M.D., Physician for Diseases of Women to the German Hospital; Physician to the Training Hospital, Tottenham; 7, South street, Finsbury square, E.C. *Council*, 1871-3.

1870 Ray, Edward Reynolds, Dulwich.

1860* Rayner, John, M.D., Swaledale House, Quadrant road north, Highbury New Park, N.

1859 Raynes, Henry, Gringley-on-the-hill, Bawtry, Yorkshire.

1871 Read, Charles, M.B., 3, Rothwell street, and 1, St. George's square, Regent's park road, N.W.

1859 Ree, Henry Pawle, L.R.C.P. Ed., F.R.C.S., St. John's, Fulham, S.W.

1859 Remington, Thomas, M.D., Visiting Medical Officer to the S. Lambeth and Brixton Dispensary; Grove House, 194, Brixton road, S.W.

1862 Richards, David, 8, St. George's place, Brighton, Sussex.

1859 Richards, Samuel, M.D., 36, Bedford square, W.C. *Council*, 1864-66.

1862 Richards, S. Smith C., 36, Bedford square, W.C.

Elected

1859 Richardson, Richard, L.R.C.P. Ed., Rhayader, Radnorshire.

1872 Richardson, William L., M.D., 76, Boylston street, Boston, Massachusetts.

1871 Rickard, Frederick Martyn, Assistant-Surgeon 25th Madras Native Infantry, Cavanore.

1872 Rigden, George, Surgeon to the Canterbury Dispensary, Burgate street, Canterbury.

1871 Rigden, Walter, Resident Medical Officer, University College Hospital, Gower street, W.C.

1871 Roberts, Arthur, 30, Kensington square, Kensington, W.

1859* Roberts, David Lloyd, M.D., Surgeon to St. Mary's Hospital, Manchester; 23, St. John's street, Deansgate, Manchester. *Council*, 1868-70. *Vice-Pres.* 1871-2. *Hon. Loc. Sec.*

1867 Roberts, David W., M.D., 56, Manchester street, Manchester square, W.

1860 Roberts, Robert Price, Shamrock House, Rhyl, Flintshire.

1859 Robinson, Thomas, M.D., 35, Lamb's Conduit street, W.C.

1868 Robson, Hope F. A., M.D., Iver, near Uxbridge.

1868 Rogers, Adam MacDougall, Surgeon, Bombay Army, Malabar Hill, Bombay.

1859 Rogers, William Richard, M.D., Physician to the Samaritan Free Hospital; 56, Berners street, Oxford street, W. *Council*, 1870-72.

1871 Roose, E. C. Robson, 32, London road, Brighton.

1859 Roots, William Sudlow, F.R.C.S., F.L.S., Surgeon to the Royal Establishment at Hampton Court, Kingston-on-Thames.

1860 Roper, Alfred George, 57, North End, Croydon, Surrey.

1865 Roper, George, Bank House, Aylsham, Norfolk.

1859 Rose, Henry Cooper, M.D., High street, Hampstead, N.W.

Elected

1859 Routh, Charles Henry Felix, M.D., Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61.

1869 Russell, Charles James, Rose Cottage, Messingham, Lincolnshire.

1870 Russell, Logan D. H., M.D., New York; Camden, Wyoming, U.S.

1866 Saboia, V., M.D., Rio de Janeiro [*per* Captain Argollo, 1, Princes terrace, Bayswater].

1864 Salter, John H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex.

1868* Sams, John Sutton, St. Peter's Lodge, Eltham road, Lee, Kent.

1872 Sangster, Charles, 15, Lambeth terrace, S.E.

1870 Saul, William, M.D., 4, Charlotte street, Fitzroy square, W.

1863 Savage, Henry, M.D., Consulting Physician to the Samaritan Hospital for Women, Lower Seymour street, Portman square, W. *Council*, 1871-2.

1872 Savage, Thomas, M.D., Surgeon to the Birmingham and Midland Hospital for Women; Bordesley, Birmingham.

1859 Scott, John, F.R.C.S., Surgeon to the Hospital for Women, Soho square; 49, Harley street, Cavendish square, W. *Council*, 1868-70. *Vice-Pres.* 1871-3.

1870 Scott, John, M.D., New street, Sandwich.

1870 Scott, John, M.D., 67, Folsam street, San Francisco.

1860 Sedgwick, Leonard William, M.D., 2, Gloucester terrace, Hyde park, W. *Council*, 1871-3.

1863 Sequeira, Henry Little, 1, Jewry street, Aldgate, E.C.

1866 Sequeira, James Scott, 34, Leman street, Goodman's fields, E.

1860 Sewell, Charles Brodie, M.D., 76, Guilford street, Russell square, W.C., and 13, Fenchurch street, E.C.

Elected

1870 Seydewitz, Baron Paul von, M.D., late Senior Physician to the East London Hospital for Sick Children, and Dispensary for Women; 4, Coleherne road, West Brompton, S.W.

1872 Shapland, John Dee, Thornton Heath, Croydon.

1862 Sharman, Malim, Surgeon to the Birmingham Free Hospital for Sick Children; 18, New Hall street, Birmingham.

1859 Sharpin, Henry Wilson, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford. *Council*, 1871-3.

1860 Shaw, George, Portland House, Battersea, S.W.

1869 Shaw, Henry Sissmore, 88, Upgate, Louth, Lincolnshire.

1859 Shearman, Edward James, M.D., F.R.C.S., F.R.S. Ed., Consulting Physician to the Rotherham Dispensary; Moorgate, Rotherham, Yorkshire.

1859 Sheehy, William Henry, L.R.C.P. Ed., 4, Claremont square, Pentonville, N.

1867 Shepherd, Frederick, L.R.C.P. Ed., 33, King Henry's road, South Hampstead, N.W.

1859 Shipton, William Parker, Consulting Surgeon to the Devonshire Hospital; Buxton, Derbyshire.

1861 Shortt, John, M.D., Surgeon H.M. Madras Army, and Superintendent-General of Vaccination, Madras Presidency. *Hon. Loc. Sec.* [Agents: Messrs. Baring, Brothers, 8, Bishopsgate within, E.C.]

1860 Skinner, Thomas, M.D., Obstetric Physician to the Lying-in Hospital; Dunedin House, 64, Upper Parliament street, Liverpool. *Council*, 1865-66. *Hon. Loc. Sec.*

1859 Sleeman, Philip Rowling, F.R.C.S., Montrose House, Queen's road, Clifton.

1861 Sloman, Samuel George, Farnham, Surrey.

1861 Slyman, William Daniel, 26, Caversham road, Kentish Town, N.W.

1860 Smart, Thomas Tovey, L.R.C.P. Ed., South Villa, Bedminster, Bristol.

Elected

1859 Smiles, William, M.D., Surgeon to the House of Correction, Cold Bath Fields; 44, Bedford square, W.C.

1870 Smith, Francis William, M.B., Westbury, Wilts.

1867 Smith, Heywood, M.D., Physician to the Hospital for Women, Soho square, and Physician to the British Lying-in Hospital; 2, Portugal street, Grosvenor square, W. *Council*, 1872-3.

1859 Smith, Protheroe, M.D., Physician to the Hospital for Women, Soho square; 42, Park street, Grosvenor square, W.

1859 Smith, William Johnson, M.D., Consulting Physician to the Weymouth Infirmary and Dispensary; Greenhill, Weymouth, Dorset. *Council*, 1869-71.

1859 Smith, W. Tyler, M.D., F.R.C.P., Consulting Physician-Accoucheur to St. Mary's Hospital; 21, Upper Grosvenor street, W. *Treasurer & Vice-Pres.* 1859-60. *Pres.* 1861-62. *Council*, 1863-73.

1860 Snell, Edmund, L.R.C.P. Ed., 59, Stepney green, E.

1866 Soper, William, Medical Officer, Jews' Hospital, Norwood 4, Clapham rise [283, Clapham road], S.W.

1869 Spaull, Barnard, F.R.C.S., 5, Vale place, Hammersmith, W.

1868 Spaull, Barnard E., 2, Vale place, Hammersmith, W.

1872 Spence, James Beveridge, M.D., County Asylum, Burntwood, Lichfield.

1859 Spencer, George, 8, Kensington park road, W.

1862 Spry, George Frederick, M.D., Assistant-Surgeon, 2nd Life Guards, The Barracks, Windsor.

1867 Squarey, Charles E., M.B., Assistant-Physician to the Hospital for Women; 13, Upper Wimpole street, W.

1859 Squire, William, M.R.C.P., 6, Orchard street, Portman square, W. *Council*, 1866-68.

1860 Stedman, Robert Savignac, Sharnbrook Grange, Bedford.

1866 Steele, Arthur Browne, L.K.Q.C.P. Ireland, Lecturer on Midwifery, Royal Infirmary School of Medicine; 54, Rodney street, Liverpool.

Elected

1869 Steele, Henry Murray, 132, Stanhope street, Hampstead road, N.W.

1859 Stone, Joseph, M.D., 84, Bloomsbury, Oxford street, Manchester.

1859 Stowers, Nowell, 125, Kennington park road, Kennington, S.E

1866 Strange, William Heath, M.D., 13, Belsize Avenue, Hampstead, N.W.

1871 Sturges, Montague J., M.D., Elmstone House, Beckenham, Kent.

1859 Stutter, Frederick Augustus, M.D., Farnboro' House, Upper Sydenham, Kent, S.E.

1870 Summerhayes, William, Upper St. Giles's, Norwich.

1862 Sutherland, William, M.D., 22, George street, Croydon, Surrey.

1862 Sutton, Field Flowers, M.D., Balham hill, Clapham, S.W.

1859 Swayne, Joseph Griffiths, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Hon. Loc. Sec.*

1850 Sweeting, George Bacon, M.R.C.P., King's Lynn, Norfolk.

1859 Symonds, Frederick, F.R.C.S., Surgeon to the Radcliffe Infirmary; 35, Beaumont Street, Oxford. *Council*, 1862-65. *Hon. Loc. Sec.*

1872 Szczygielski, Joseph, M.D., St. Terska, No. 24, Warsaw Russian Poland.

1871 Tait, Lawson, F.R.C.S. Ed. and Eng., L.R.C.P. Ed.; Surgeon to the Birmingham and Midland Hospital for Women, and to the Lying-in Charity; Consulting Surgeon to the Church Stretton Asylum for Ladies; 7, Great Charles street, Birmingham.

1866 Tannahill, Robert Dunlop, M.D., Physician to the Lying-in Hospital; 106, Bath street, Glasgow.

Elected

1871 TANNER, JOHN, M.D., L.R.C.P. Ed., 118, Newington Causeway, S.

1859 TAPSON, ALFRED JOSEPH, M.B. Lond., 35, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64.

1863 TAPSON, JOSEPH ALFRED, Surgeon to the Clapham General Dispensary; 83, High street, Clapham, S.W.

1871 TAYLER, FRANCIS F., B.A. Lond., and M.B., Claremont villa, Lewisham road, S.E.

1859 TAYLOE, EDWARD, South lodge, Clapham common, S.W.

1870 TAYLOR, ARTHUR, M.B., 248, Kennington park road, S.E.

1859 TAYLOR, CHARLES, M.D., Pine house, Camberwell green, S.E. *Council*, 1869-71.

1859 TAYLOR, DAVID, 180, Kennington park road, S.E.

1869 TAYLOR, JOHN, Earl's Colne, Halstead, Essex.

1871 TAYLOR, JOHN W., 28, Queen street, Scarborough.

1862 TAYLOR, THOMAS, F.R.C.S., 19, Bennett's hill, Birmingham.

1872 TEMPLE, JAMES ALGERNON, M.D., Lecturer on Midwifery, Trinity College, Toronto.

1862 THANE, GEORGE DANCER, M.D., 15, Montague street, Russell square, W.C.

1872 THOMAS, JAMES BYER, Assistant-Surgeon H.M.'s Indian Army, Madras and Zillah Surgeon, Tinnevelly.

1870 THOMPSON, JOHN ASHBURTON, 207, Caledonian road, N.

1867 THOMPSON, JOSEPH, Junr., 1, Oxford street, Nottingham.

1869 THOMPSON, D. R., M.D., M.R.C.S., Officiating Civil Surgeon, 26th Native Infantry, Trichinopoly. [Messrs. de Beaux & Co., Esplanade Dispensary, Black Town, Madras.]

1867 THORBURN, JOHN, M.D., Lecturer on Midwifery, Manchester Royal School of Medicine; 333, Brighton place, Oxford street, Manchester.

1867 THORMAN, THOMAS, 17, Oxford terrace, Hyde park, W.

1860 THORNE, GEORGE LEWORTHY, M.D., Swanage, Dorset.

1871 THORNE, WILLIAM BEZLY, 46, Harcourt terrace, Redcliffe square, South Kensington, S.W.

Elected

1862 THORNTON, WILLIAM HENRY, M.D., Springfield terrace, Dewsbury, Yorkshire.

1867 THORNTON, WILLIAM HENRY, Surgeon to the Royal National Sea Bathing Infirmary; Berkeley Lodge, Margate.

1860 TIFFEN, ROBERT, M.D., Wigton, Cumberland.

1866 TILLEY, SAMUEL, 70, Union road, Rotherhithe, S.E.

1859 TILT, EDWARD JOHN, M.D., Consulting Physician-Accoucheur to the Farringdon General Dispensary; 60, Grosvenor street, W. *Council*, 1867-68. *Vice-Pres.* 1869-70. *Treas.* 1871-2. *Pres.* 1873.

1859 TIMES, HENRY G., 23, Manchester street, Manchester square, W.

1872 TOLOTSCHINOFF, N., M.D. Kieff, Russia.

1872 TOMKINS, ARTHUR WELLESLEY, B.A., M.D., 11, Easton place, Leamington.

1869 TOMKINS, CHARLES P., L.K.Q.C.P. Ireland, Beddington park, Croydon.

1870 TOWNE, ALEXANDER, Junr., 354, Kingsland road, N.E.

1865 TREND, HENRY GRISTOCK, L.R.C.P. Ed., 191, Southgate road, Islington, N.

1872 TRENHOLME, EDWARD HENRY, M.A., M.D., C.M., Professor of Midwifery, University of Bishop's College, Montreal, Canada.

1872 TUCHMANN, MARO, M.D., 148, Adelaide road, N.W.

1865 TURNER, JOHN SIDNEY, Surgeon to the Anerley Dispensary, Woodside, Anerley road, Upper Norwood, Surrey.

1861 TURNER, RICHARD, Surgeon to the Lewes Dispensary; High street, Lewes, Sussex.

1871 TURTON, FREDERIC, Ablow House, Wolverhampton.

1861 TWEED, JOHN JAMES, Junr., F.R.C.S., 14, Upper Brook street, W.

1872 VANDERSTRAATEN, JULIAN LOUIS, M.D., Civil Medical Service, Ceylon, 202, Euston Road, N.W.

1860 VARENNE, EZEKIEL G., Kelvedon, Essex.

1864 WAULTUCH, ADOLPHE, M.D., 280, Oxford street, Manchester.

Elected

1860 WALES, THOMAS GARNEYS, Jun., Downham Market, Norfolk.

1869 WALKER, ALFRED, M.B., Physician to the East London Hospital for Sick Children; [abroad] 17, Throgmorton street, E.C.

1866 WALKER, THOMAS JAMES, M.D., Surgeon to the General Infirmary, Peterborough; 18, Westgate, Peterborough.

1870 WALLACE, FREDERICK, District Surgeon to the Royal Maternity Charity; 243, Hackney road, N.E.

1872 WALLACE, JOHN, M.D., Assistant-Physician to the Liverpool Lying-in Hospital; 30, Great George square, Liverpool.

1872 WALLER, CHARLES BEAUMONT, Sydenham, S.E.

1860 WALLER, JOHN TURPIN, Flegg Burgh, Norfolk.

1867 WALTERS, JAMES HOPKINS, Faringdon, Berks.

1859 WANE, DANIEL, M.D., 20, Grafton street, Bond street, W.

1860 WARD, JOHN, Penistone, Sheffield, Yorkshire.

1859 WARDEN, CHARLES, M.D., Hon. Surgeon to the Birmingham Lying-in Hospital; 39, Temple street, Birmingham.

1862 WATKINS, CHARLES STEWART, 16, King William street, Strand, W.C.

1861 WATTS, GEORGE HENRY, Thatcham, near Newbury, Berks.

1867 WEBB, FRED. E., 113, Maida vale, W.

1859 WEBB, HENRY SPEAKMAN, Welwyn, Herts.

1872 WEBSTER, THOMAS, Malvern House, Redland, near Bristol.

1860 WELCHMAN, CHARLES EDWARD ELLIOT, Bore street, Lichfield, Staffordshire.

1867 WELLER, GEORGE, Forest lodge, Wanstead, Essex.

1859 WELLS, T. SPENCER, F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70.

1859 WESTMACOTT, JOHN GUISE, M.D., Medical Officer to the Paddington Provident Dispensary; 19, St. Mary's terrace, Paddington, W.

Elected

1870 WHEATCROFT, SAMUEL HANSOM, L.R.C.P. Ed., Lichfield street, Tamworth.

1860 WHEELER, DANIEL, Chelmsford, Essex.

1860 WHITE, FREDERICK GEORGE, L.R.C.P. Ed., Castle House, Chepstow, Monmouthshire.

1859 WHITEHEAD, JAMES, M.D., Physician to the Manchester Clinical Hospital; 87, Mosley street, Manchester. *Council*, 1859-61. *Vice-Pres.* 1868-69.

1870 WHITEHEAD, JOHN, M.D., 7, Poole's terrace, Seven Sisters road, Holloway, N.

1865 WHITEHEAD, WALTER, F.R.C.S. Ed., Surgeon to St. Mary's Hospital for the Diseases of Women and Children; Clareville, 248, Oxford road, Manchester.

1864 WHITMARSH, WILLIAM MICHAEL, M.D., Surgeon to the Hounslow Lying-in Charity: Albemarle House, Hounslow, Middlesex.

1867 WILBE, RICHARD HAYDOCK, M.D., York Lodge, 21, Finchley road, St. John's Wood, N.W.

1871 WILKINSON, WILLIAM HENRY WHITEWAY, L.R.C.P. Ed., 268, Caledonian Road, Islington, N.

1861 WILLIAMS, ARTHUR WYNN, M.D., Physician to the Samaritan Free Hospital; 1, Montagu square, W. *Council*, 1871.

1861 WILLIAMS, DAVID JOHN, M.D., Queenscliff, Geelong, Victoria, Australia. *Hon. Loc. Sec.* [*Per* J. W. Voss, Esq., Yspitty works, Loughor, Llanelly.

1864 WILLIAMS, EDWARD, M.D., Holt street House, Wrexham.

1867 WILLIAMS, HENRY LLEWELLYN, M.D., 9, Leonard place, Kensington, W.

1872 WILLIAMS, JOHN, M.D., Assistant-Obstetric Physician to University College Hospital; 28, Harley street, Cavendish square, W.

1860 WILLIAMS, ROBERT HANKINSON, L.R.C.P. Ed., Great Eccleston, near Garstang, Lancashire.

1860 WILLS, JOHN, M.D., St. Helier's, Jersey.

Elected

1859 WILSON, JAMES GEORGE, M.D., Professor of Midwifery in the Andersonian University, Glasgow; Physician-Accoucheur to the Glasgow Lying-in Hospital and Dispensary; 9, Woodside crescent, Glasgow. *Council*, 1863-64. *Vice-Pres.* 1865-67.

1860 WILSON, ROBERT JAMES, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec.*

1865 WILSON, THOMAS, L.R.C.P. Ed. (exam.), Alton, Hants,

1868 WILTON, JOHN, L.R.C.P. Ed., Chalk Pit House, Sutton, Surrey.

1866 WILTSHIRE, ALFRED, M.D., Assistant-Obstetric Physician to St. Mary's Hospital, and Physician for the Diseases of Women to the West London Hospital; Physician to the British Lying-in Hospital; 57, Wimpole street, Cavendish square, W. *Council*, 1870. *Hon. Lib.*, 1871-3.

1866 WINTERBOTTOM, HENRY, Consulting-Surgeon to St. Mary's Hospital, Manchester; 56, Bury New road, Strangeways, Manchester.

1872 WISE, WILLIAM CLUNIE, M.D., Gothic villa, Burrage road, Plumstead, S.E.

1860 WISEMAN, WILLIAM WOOD, Springstone House, Ossett, near Wakefield, Yorkshire.

1872 WOOD, ROBERT ARTHUR HENRY, 102, Pembroke place, Liverpool.

1860 WOOD, WILLIAM JAMES, Brightwaltham, Wantage, Berks.

1864 WOODMAN, WILLIAM BATHURST, M.D., Assistant-Physician to the London Hospital; 6, Christopher street, Finsbury square, E.C.

1859 WORSHIP, J. LUCAS, Manor House, Riverhead, Sevenoaks, Kent.

1871 YARROW, GEORGE EUGENE, M.D., 87, Old street, E.C.

1866 YEAMAN, GEORGE, M.D. 91, Sauchiehall street, Glasgow.

1870 YEATES, GEORGE, M.D., Walthamstow, Essex.

1861 YOUNG, WILLIAM BUTLER, 5, Castle street, Reading, Berks.

1869 YULE, JOHN S. C., 78, Walmsey road, Bury, Lancashire.

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January 3rd, 1872—

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ADVERTISEMENT.

The Society is not as a body responsible for the facts and opinions which are advanced in the following papers and communications read, or for those contained in the abstracts of the discussions which have occurred, at the meetings during the Session.

OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1871.

ANNUAL GENERAL MEETING,

JANUARY 3RD, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—59 Fellows and 13 visitors.

Books were presented from Dr. Spiegelberg, Dr. C. C. Lee, New York, Dr. Henry Miller, Louisville, and the Royal Medical and Chirurgical Society.

Dr. Montague J. Sturges and Dr. Francis F. Tayler were admitted Fellows of the Society.

The following gentlemen were elected Fellows: Thomas Bridgwater, M.B., Harrow; Edward Charlton Fox, M.D., Birmingham; — Gardner, M.D., Montreal; William Harding, F.R.C.S.; Robert Hancy Hilliard, M.D.; Edwin Matthews James, M.R.C.S., Melbourne; Robert Jalland,

M.R.C.S., Horncastle; James Lattey, M.R.C.S.; William Baily Rankin, L.R.C.S. Ed., Melbourne; Julian Louis Vanderstraaten, M.D.; and William C. Wise, M.D., Plumstead.

Dr. Bantock exhibited a specimen illustrating the changes which take place in the pedicle of an ovarian tumour when treated by ligature. It was obtained in the post-mortem examination of a patient on whom he performed double ovariotomy on 11th July, 1870. The patient died on the 9th July, 1871, of cancer in stomach, liver, mesenteric glands, uterus, stump of one pedicle, and abdominal walls. She had made a very good recovery from the operation, and about three months afterwards cancer made its appearance in the site of the right pedicle (which was secured by external clamp), where it could be felt under the abdominal wall. The left pedicle was secured by a hempen ligature and the ends cut off short.

When the parts were exposed no trace of the pedicle could be seen, and the upper border of the broad ligament formed a continuous line with the *fundus uteri*, but close to its edge could be felt a small body as large as a hemp seed, covered by peritoneum, and about an inch and a half from the uterus. A triangular piece was cut out, and the hard body was found to be formed of the knot of the ligature, the loop and ends having disappeared. What remained had lost its original characteristics.

Dr. Bantock referred to the experiments of Drs. Spiegelberg and Waldeyer of Breslau, made with the view of ascertaining the changes which take place in the case of ligature of tissues within the peritoneal cavity. Their experiments were made on the uterine horns of the bitch, and their results were confirmed by the specimen shown. They show that in this situation ligature of considerable portions of living tissue is not followed by sloughing of the distal portion except under the destructive influence of peritonitis, but that by the effusion of plastic lymph and its subsequent organisation, or, as they term it, by the rapid growth of cells, its vitality is maintained to a certain degree.

Confining oneself to the specimen, the course of events would appear to be as follows:—When the ligature is applied it forms a deep constriction, which, by the bulging of the tissues on each side, causes the living to come in contact with the strangulated tissues, plastic lymph is thrown out, glueing together the opposing surfaces, and its organisation establishes a vital connection between the two, so that sloughing is prevented. This result is also favoured by the fact that by displacement of the tissues immediately embraced by the loop of the ligature, in course of time the loop ceases to exert any force; and it is possible that the capillaries ultimately become pervious. No sooner has the organisation of the lymph taken place, and the capillaries have become pervious, than the absorbents begin their work and remove not only such portions of the tissues as are unable to maintain their integrity, but the ligature itself yields to the forces at work. The experiments of Drs. Spiegelberg and Waldeyer show that this destructive action begins within a few weeks in the case of the ligature, and the specimen confirms this; while it further shows that the strangulated portion also suffers at an early period. Their experiments do not appear to have been continued to their fullest extent and to ultimate results, but the specimen furnishes a complete account. It shows how the growth of peritoneum completely obliterated all trace of the ligature and wound, and how the interruption of a through current interfered with the nutrition of the proximal portion of the pedicle and subsequently led to atrophy of the included Fallopian tube.

Dr. Bantock concluded by stating that, while entertaining the opinion that the extraperitoneal method by clamp was absolutely superior to all other methods of treatment, his case demonstrated the safety of the ligature; and he should have less hesitation than formerly in adopting the ligature whenever the shortness of the pedicle prevented the application of the external clamp, or involved the risk of retraction of the stump from destruction of adhesions.

ON THE TREATMENT OF EMPYEMA IN CHILDREN.

By W. S. Playfair, M.D., F.R.C.P.,

PROFESSOR OF OBSTETRIC MEDICINE IN KING'S COLLEGE; OBSTETRIC PHYSICIAN TO KING'S COLLEGE HOSPITAL, AND PHYSICIAN TO THE EVELINA HOSPITAL FOR CHILDREN.

We were told in our late President's farewell address that the subject of diseases of children, which forms an important division of the work of the obstetrician, has not received sufficient attention in this Society.

In deference to that hint I propose to bring under your notice to-night a point of great practical importance in connection with infantile disease. All who see much of children's diseases will admit that pleuritic effusion is far from uncommon, and that it is frequently a very troublesome affection. In its slighter forms it is frequently overlooked, or mistaken for some other complaint. The graver forms, in which there is a large amount of fluid effusion, lead to very serious consequences—debility, emaciation, often lifelong deformity from contraction of the chest-wall over the flattened and unexpanded lung, and not unfrequently to secondary tuberculosis. It is of the utmost importance, therefore, that we should carefully study the best means of managing this affection, with the view of preventing, as far as possible, the very serious results which so frequently ensue. To enter at length, however, into the general question of the treatment of pleuritic effusions is impossible within the short limits into which it is necessary to compress this paper.

I propose, therefore, to confine myself simply to the best mode of managing those cases in which there is a considerable amount of fluid in the pleural cavity, and in which the fluid is purulent; to cases of empyema, in short, as contradistinguished from simple serous pleurisy. In children, as is well known, such cases are much more frequent than in adults. In them pleuritic effusion soon becomes purulent, and often is so from the commencement of the disease. Into

the general question of the advantages of paracentesis I shall not enter. This is a subject which has attracted much attention, and on which the views of the profession have been greatly modified. Of late years the opinion has been steadily gaining ground that even in simple serous effusion, paracentesis, performed in such a way as to prevent the entrance of air into the chest, is not only a perfectly justifiable operation, but one which may be considered practically harmless, and likely to materially lessen the suffering of the patient, as well as shorten the duration of the disease. This view I cordially endorse, but do not now intend to discuss. To those who wish to make themselves thoroughly acquainted with the arguments in its favour, I should recommend a perusal of my friend Dr. Anstie's admirable monograph on pleurisy in the third vol. of 'Reynolds's System of Medicine,' where they will find all that can be said on the subject fully set forth.

Very little consideration will show that paracentesis in serous pleurisy stands on a very different footing from the same operation in empyema. In the former the physician taps the chest not to remove the whole of the contained fluid, but so to diminish it as to admit of the remainder being more readily absorbed. That nature is capable in the majority of cases of effecting the entire absorption of the effused fluid is not doubted; but this often requires a long time, and involves a protracted illness. The operation is practised, therefore, to hasten the cure—to facilitate, as it were—nature's work. All that is required is, that it should be done in such a manner as to exclude as much as possible the entrance of air. For this purpose, no doubt, Bowditch's syringe, with which that physician has obtained such admirable results, or Dieulafoy's aspirator, which are recommended by Dr. Anstie, are the best instruments at our disposal. But they are complicated and expensive, and not always at hand, and, for all practical purposes, I believe that a small trocar and canula, with an elastic tube attached, opening under water, will answer quite as well.

In empyema, however, the chance of the entire absorption of the pus, even when a portion of it has been removed, is

reduced to a minimum. I do not mean to say that the fact of the fluid being purulent precludes all hopes of a cure when tapping is not performed; but the chances are comparatively small, and the evil effects of protracted cases of this sort are familiar to all who have studied the subject. I believe that what we should seek by paracentesis in such cases is, not only to evacuate as much as possible of the fluid, but to secure the escape of all the pus subsequently formed; to effect, in fact, a constant drainage of the pleural cavity. Now, all the methods by which this is accomplished, save the one shortly to be described, involve the free admission of air into the sac of the pleura. The one most frequently adopted is, simply to treat the pleura like a large abscess, to lay it open freely by an incision in a depending position, and sometimes to promote the cessation of the discharge in the manner recommended by Trousseau, by washing out the pleura with a solution of iodine.

It was a decided improvement on this rough-and-ready method to introduce a Chaissaignac's drainage tube by two openings, so that the pus should drain away as soon as it was formed.

The great advantage, however, of a plan by which this result could be obtained, and the entrance of air at the same time effectually prevented, will be manifest to all. Whatever we may think of the germ theory, the practical good effect of completely excluding all access of air to the cavity of an abscess can hardly be doubted. How important must this be when the pus-secreting surface is so great as the whole serous lining of one side of the chest! Again, one of the chief objects we seek to effect is, that the compressed and flattened lung may again expand. The more completely it does so the less will be the subsequent shrinking and deformity of the chest. Draw away the pus, and, provided no air enters, there is every hope of the lung regaining its former dimensions, especially in children, in whom the lung is rarely bound down by false membranes, as frequently happens in adults. But lay open the pleura, and subject the lung for weeks or months to direct atmospheric pressure, as is necessary when the plans I have mentioned are adopted,

and you can scarcely be surprised at the permanent collapse of the lung so constantly observed under such circumstances. For these reasons I believe the plan I am about to describe, and for the first idea of which I am indebted to a conversation with my friend Dr. T. J. Walker, of Peterborough, will, I feel confident, materially aid our treatment of these important cases; and, should further experience confirm the good results already obtained, it will have the effect not only of greatly shortening the duration of the illness, but of leaving the patient in a much more favorable condition than has hitherto been possible.

It will enable us to contrast the results following these various methods of treatment if I briefly relate the particulars of two cases, in one of which the old Galenic method of freely laying open the pleural cavity was practically, though not intentionally used, and in the other the continuous drainage with a Chaissaignac's tube, which was first employed in this country, I believe, by Mr. de Morgan. The results in both were extremely satisfactory, insomuch as I believe that the treatment adopted actually saved the lives of both children, which were in extreme peril, but at a cost to their health far greater than in the cases treated by the method of subaqueous drainage.

Annie Webb, æt. 4 years, was admitted into the Pantia Ralli Ward in King's College Hospital on the 11th of July, 1871, under the care of my colleague, Dr. Priestley. The general history of the case I need not relate, but it will suffice to say that all the signs of extensive pleuritic effusion were well marked, the whole left side of her chest was dull, and the breath sounds distant and feeble. Appropriate general treatment was ordered, but the effusion continued to increase rather than to diminish, and the child was reduced to a state of extreme debility. This was her condition when she came under my care at the end of the first week in August, on Dr. Priestley's departure from town. At this time the dulness was almost universal, the intercostal spaces were distinctly bulging, and the heart displaced, so that the

apex beat was felt immediately below the right nipple. There was marked nocturnal hectic and profuse sweating. She refused food, and had a furred tongue.

On the 16th of August paracentesis was performed between the fifth and sixth interspaces, the canula being connected with a tube opening under water, but only a small quantity of thick pus escaped. Next day an erysipelatous rash commenced at the site of the puncture, which did not spread, but led to the formation of a small slough about the size of a sixpence. I attribute this to the extreme debility of the patient, and possibly also, in part, to the fact that a preliminary incision was made in the intercostal space before the trocar was introduced, at the edges of which the sloughing commenced. This I believe to be always unnecessary, and to be certainly prejudicial when we attempt to prevent the entrance of air. This was treated with charcoal poultices, and next day a free discharge of pus took place (the slough having made a free opening into the pleural cavity) to the manifest relief of the patient. Pus continued to escape in considerable quantities, and during this time the child steadily improved in spite of the exhausting discharge.

On September the 2nd, the pus still flowing as freely as ever, I directed the pleura to be syringed daily with a solution of iodine, one part of the tincture to five of water. An immediate improvement commenced, and the discharge soon began to lessen in quantity.

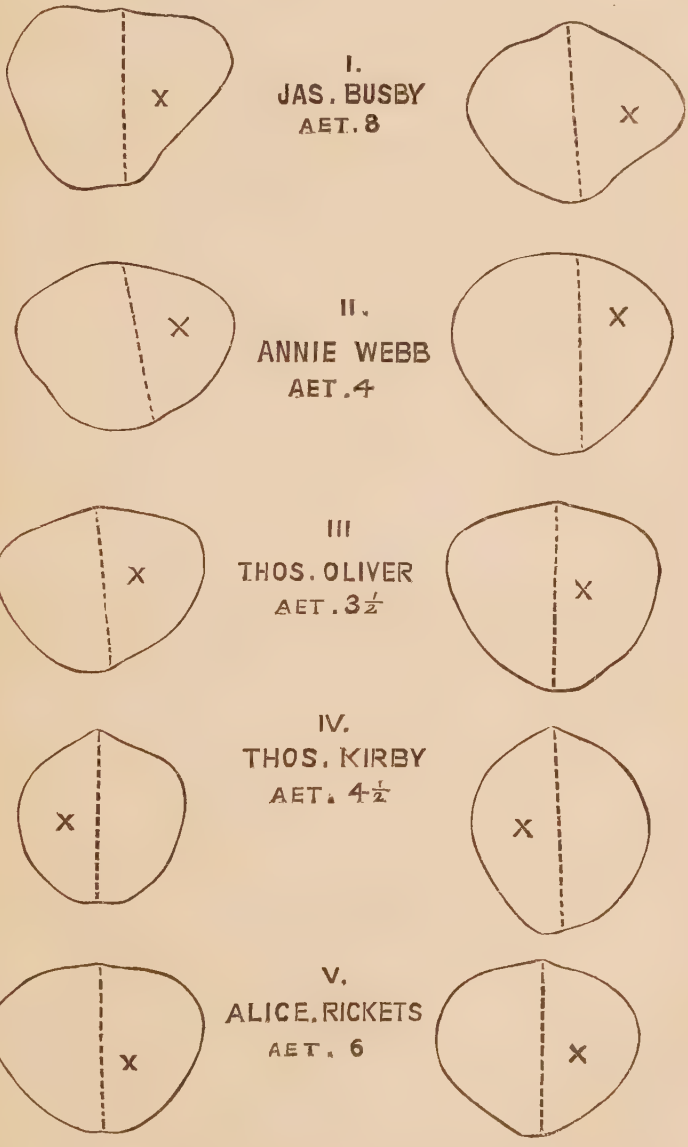
She continued to convalesce from this time without any further drawback, and on the 10th of October she was sent to the convalescent home at Clewer. Then the wound was nearly closed, but there was still a good deal of discharge, which I learn is still continuing.* The chest was contracting, and there will certainly be considerable deformity. (*Vide* Fig. II.)

The case in which Chaissagnac's drainage tube was inserted is as follows:

James Busby, æt. 8, was admitted into King's College

* May, 1872.—The pleural fistula is still discharging pus freely.

UNDER AXILLÆ. ½ IN. BELOW NIPPLES



Hospital under Dr. Priestley on the 6th of June, 1870, with extensive pleuritic effusion following scarlatina. The whole of the left side was dull, the dulness extending across the median line. The heart's apex beat was felt half an inch below the right nipple. The circumference of the left side of the chest was one inch and a half greater than that of the right. He got steadily worse, and was in extreme peril.

On the 13th of July paracentesis was performed by Mr. Wood. Thirty-six ounces of thick pus were drawn off under water, immediately after which he breathed more easily, passed a good night, and next day was more comfortable than he had been for a month.

On the 20th of July the pleura had filled again, and the boy was as bad as ever. Paracentesis was again performed, nine ounces of pus being removed, but with little benefit. Next day the dyspnœa was greater, the pus evidently pointing, a bulging red and tender swelling having formed under the left nipple.

On the 24th the child seemed on the point of death, and the house-surgeon opened the swelling with a bistoury. Eighteen ounces of pus gushed out, and for a week afterwards the discharge was very profuse, soaking the bedclothes three or four times a day. Œdema of the feet and intense diarrhœa came on, which resisted every treatment until the child was fed exclusively on raw meat.

Early in August he came under my care. At this time his condition was as unfavorable as it well could be. He was almost at death's door from exhaustion, and every day was expected to be his last, although the dyspnœa was by no means so great as formerly.

About the 16th of August the discharge ceased, and pus again began to collect in the pleural cavity. I then asked Mr. Wood to make a counter-opening, and insert a Chaissaignac's drainage tube, one end passing through the former aperture. From that moment he began to improve steadily. There was no farther interference with the escape of pus, which began to diminish in amount daily.

On September 16th a smaller tube was substituted, and on

October 20th, the discharge having nearly ceased, the tube was entirely removed. He was not able to leave the hospital, however, until November 4th. I saw the child a few weeks ago, nearly a year after his discharge, and found the chest greatly and, it is to be feared, permanently contracted. (*Vide* Fig. I.) The result, however, of the constant drainage in this case was most satisfactory. I certainly never saw a child recover after so severe and so exhausting an illness, in which death was for long almost hourly expected.

It is to be observed, however, by way of contrast to the cases presently to be related, that, although both these children recovered, it was only after a very protracted illness. In one case close upon two months elapsed after the first tapping before the child was able to be sent to a convalescent home, with a pleural fistula still discharging; in the other it was close upon five months before the child could be removed from the hospital; and in both there was considerable and permanent contraction and deformity of the chest, which is inevitable under such circumstances.

I now proceed to describe the method of operating, to which I wish specially to call your attention. The object sought is to effect continuous drainage without the entrance of air. The procedure is nearly as simple as ordinary paracentesis, and the necessary apparatus is so inexpensive as to be within the reach of every one. All that is required is about six inches of the ordinary fine drainage tubing (*a*), and about six feet of ordinary caoutchouc tubing (*b*). These are attached to each other by about an inch of glass tubing, over each end of which one extremity of the tube is passed. The free extremity of the drainage tube lies within the cavity of the pleura; that of the india-rubber tube passes through a perforated cork into a bottle half filled with water (see Woodcut). The mode of using the apparatus is as follows:—In a case of suspected empyema a puncture is first made with an exploring needle to determine the fact of the contained fluid being purulent. For this purpose nothing is better than the ordinary syringe for subcutaneous injection, which resembles a pneumatic aspirator in miniature. Should it prove to be so a trocar is passed

in, the canula of which is of sufficient size to admit of the passage of the drainage tube. As soon as there is a free flow of pus this is passed into the pleural cavity through the canula, which is then withdrawn over it. An assistant now pinches the tubing close to its entrance into the chest to stop the flow of pus through it until the other end of the drainage

tube is attached to the small piece of glass tubing. The pus is now allowed to flow into the bottle of water, and the drainage tube is attached to the chest by passing round it a loop of fine wire (*c*), which is fixed by strapping. The tube remains permanently in the pleural cavity, and any pus that is formed drains away at once. The only way by which air can possibly enter is by the side of the tubing, but the chances of this are very small, and none was found to enter in the three cases in which this method has been used. It

would make assurance doubly sure were the puncture made through a layer of chloralum wool, or some similar antiseptic dressing, which might be permanently retained round the seat of puncture.

It may be thought that the tubing would prove exceedingly irksome to the child, who might pluck it away. I certainly feared this, but in none of the cases was there the least trouble of the kind. The tubing did not seem to incommode the little patients in the least, who moved about in bed, played, sat up, and turned from side to side without the least difficulty, and without even disarranging the apparatus.

A brief account of the three cases in which this system of continuous drainage was used will best illustrate its advantages. They all occurred in the Evelina Hospital for Sick Children. The first was under my own care, the other two under that of my colleague, Dr. Hilton Fagge, who adopted the method from observing its good effect, and who has kindly permitted me to make use of them.

Alice Ricketts, æt. 6 years. The previous history of this case it was found impossible to ascertain with accuracy, but the illness seems to have been of, at least, a month's duration. On admission, all the signs of extensive pleuritic effusion were well marked. The left side of the chest was universally dull; the intercostal depressions were obliterated, and the circumference of the left side measured three quarters of an inch more than that of the right. The heart was displaced, and the apex beat half an inch below the right nipple. Dyspnœa was urgent, and paracentesis was performed in the ordinary manner, the tube attached to the canula opening into a basin of water, about a pint and a half of thick pus being discharged, to the manifest relief of the patient. The pleura, however, rapidly began to fill again, and in eleven days the dyspnœa was worse than ever. At this time the pus was pointing under the left clavicle, where a large fluctuating swelling had formed, which was red on the surface and evidently on the eve of bursting. The system of subaqueous drainage I have described was now adopted, and nearly a

quart of pus flowed away at once into the bottle. Next day the child was better in every respect, had slept and ate well, and was breathing with ease. The swelling under the clavicle had disappeared. For the first few days about three ounces of pus were discharged daily into the bottle, and for some days more about an ounce. There never was a bad symptom of any kind, and the child rapidly gained flesh and strength. The apparatus was not removed until the twenty-second day after the operation, although there had not been any discharge for some time. The wound closed up in a day or two. The lung expanded completely, and there was no subsequent deformity beyond a little flattening under the left clavicle.

This was as bad a case of empyema as could be met with, and the fact that paracentesis had been performed in the ordinary way without material benefit shows the advantages of continuous drainage in an eminent degree. In a few hours more the abscess below the clavicle would certainly have burst. (*Vide* Fig. V.)

The second case, under Dr. Fagge, was admitted on September 21st, 1871.

Thomas Kirby, æt. 4 years. His illness dated from a month back; the physical signs were noted as follows:—Dulness over the whole of the right side, both anteriorly and posteriorly, except under the right clavicle, where the percussion was tympanitic. Breathing distinct and tubular. Total loss of vocal vibration. Intercostal spaces obliterated. Heart's apex beat outside left nipple.

No improvement having taken place paracentesis with subaqueous drainage was performed on October 4th, and a large amount of pus (the quantity not being noted) poured away. Next morning the child was better in every way. The temperature had fallen $2\frac{1}{2}^{\circ}$ and remained normal until his discharge. He had slept well, and there was no dyspnœa. He now lies on his left side, which he was unable to do before. On the 10th of October, it was noted, "No absolute dulness now, but right side less resonant than left; respiratory

sounds everywhere audible; about one ounce of pus discharged into the bottle daily."

October 17th.—All discharge having ceased the tube was removed thirteen days after the operation. The wound now rapidly closed, and there was hardly any subsequent flattening of the chest. (*Vide* Fig. IV.)

The next case, also under the care of Dr. Fagge, is as follows:

Thomas Oliver, æt. 3½ years, was admitted October 23rd, 1871, his illness being of three weeks' duration. There is absolute dulness over the whole left chest. The heart is displaced, and the apex beat is felt between the seventh and eighth rib on the right side. There is marked bulging of the left side, which measures one inch more in circumference than the right. Intercostal spaces obliterated; breathing distant and feeble.

On the 28th, the dyspnœa being urgent, the operation was performed, and about a pint of pus escaped into the bottle.

29th.—About twenty-five ounces more of pus had come away. He had passed a good night and eats heartily. Heart's apex beat in the normal position. The lung is expanding, and breath sounds are audible over the left front, and over the back as low as the angle of the scapula. The breathing is vesicular and normal, and the resonance is good. Vocal fremitus has returned.

November 1st.—Respiratory sounds audible all over the left chest. During the last twenty-four hours scarcely an ounce of pus has passed.

4th.—Seven days after the operation, no pus having come away for some time, the tube was removed.

12th.—Perfectly convalescent with good breathing over the whole of the left side. (*Vide* Fig. III.)

These cases speak for themselves. I think they may safely challenge comparison with any other method of treating an affection which at best has always involved a tedious and protracted illness.

As I write Dr. Bouchut is publishing a series of papers in the 'Gazette des Hôpitaux,' on the treatment of empyema in children. He strongly recommends the use of the pneumatic aspirator as superior to every other method of treatment. As soon as the chest refills with pus he repeats the aspiration until no more pus can be obtained. He conceives his results to be excellent, and I beg your permission to condense the first three cases he narrates for the purpose of comparison with those in which continuous subaqueous drainage was employed.

Case 1.—A boy, æt. 10; extensive empyema; first operation on February 18th. The chest having refilled, it was repeated in a week, and a third time after another week.

In May the operation was performed three times; in June nine times; in July it was performed every third day. He was discharged cured on the 20th of August, after thirty-three operations, and with considerable chest deformity.

Case 2.—A boy, æt. 8. After six operations a hydro-pneumo-thorax formed. After nine months of treatment the child is still uncured, and is now tapped twice a week and has some pus drawn off.

Case 3.—A boy, æt. 7; extensive effusion into right side; Dieulafoy's aspirator was used; in two days the chest filled again; at the second aspiration there was great difficulty from blocking up of the tube, which had to be removed and reintroduced two or three times, and eventually no more pus could be got out. Bouchut intended to make a long free incision into one of the intercostal spaces on the next day, but during the night the child died. He concluded that the lung was bound down by adhesions which prevented its expanding to drive out the pus.

Now here we have one case ending fatally, and one still under treatment after nine months' continuous operations, the third being discharged cured after sixth months' treatment, and thirty-three operations.

I have not picked these cases, they are the first three published in illustration of the method recommended, and, at the time I write, no others have appeared. Now, in the three treated by the method I advocate, and to judge from description, they were quite as bad in every way as Bouchut's, the longest time required before the removal of the apparatus was a month, the other two being practically cured in thirteen and seven days.

Surely any comment on these comparative results is unnecessary.

Of course, I cannot say whether farther experience will confirm the favorable results already obtained, but, at least, they are such as to claim for this operation a fair trial in this most troublesome class of cases.

The reason why no pus was obtained in Bouchut's third case is worthy of a moment's consideration. His own explanation seems to me to be probably the correct one. He conceives that the lung was bound down by adhesions which prevented its expanding, and driving out the contained fluid. The chest would, under such circumstances, resemble a barrel in which a tap was placed without a hole being bored in it to admit of atmospheric pressure. In the case of Annie Webb something of the same kind happened, and there was little or no escape of pus until the slough had formed a free opening into the pleural cavity.

Dr. Hilton Fagge felt bound to mention to the Society that he had recently had another case in which the same method had been employed, and with results not entirely so satisfactory. The pus had in this instance made its way by the side of the india-rubber tube, and continued to discharge. The patient was at present doing well, but there had not yet been time for the ultimate result of the case to be determined. It was of great importance that the tube should be tightly grasped by the skin, and for this reason it was better to remove the canula before introducing the india-rubber tube, which should be of the same diameter. This was the plan that had been adopted in all his cases.

Mr. Taylor related the following case in which paracentesis had been practised. Walter T—, æt. 18, having been exposed

to cold some time previous, showed marked signs of empyema about June 5th, 1870. There was dulness over the whole of the left chest with loss of respiratory sounds and vocal fremitus, with displacement of the viscera, sweating, &c. On June 16th the chest was tapped through the sixth intercostal space with a syphon trocar. An india-rubber tube was affixed to the canula and carried into a basin of water. About thirty ounces of pus passed at the time. The canula with the tube was retained for twenty-four hours, a piece of elastic catheter with a smaller india-rubber tube[1] was then inserted through the canula, which was withdrawn. The patient's health was much improved immediately after the operation. After eight or nine days the discharge ceased, but the tube was retained till June 21st, that is, fifteen days, when it was withdrawn. The heart had come over considerably to the left, and breath sounds could be heard more or less all over the left chest. The patient had an excellent appetite, taking two meat meals a day with stout. The patient now passed from my charge temporarily. The chest refilled and the pus made its way through the chest wall near the left nipple. He has made a slow but good recovery.

Dr. SEDGWICK approved very much of Dr. Playfair's plan of subaqueous paracentesis. He had himself occasionally, during the last fifteen or sixteen years, carried out the same principle. He had used a canula, the tube of which projected externally an inch beyond the shield, on which he slipped a long india-rubber tube, with the other end dipping into a dish of water. Dr. Playfair's plan of introducing the india-rubber tube into the chest was very much better than leaving the silver canula in, as possible injury to the lung was thereby avoided. Dr. Sedgwick had adopted the same plan as that described above in a case of paracentesis abdominis, where the patient was exceedingly weak and the abdominal walls were almost as thin as parchment. The enormous collection of fluid was creating great distress, but the patient was so weak that there appeared no possibility of her bearing a rapid removal of the fluid. The withdrawal was extended over a period of a week, the free end of the tube being always under water. The plan succeeded well. The rapidity of the flow was entirely under control by means of pressure on the tube.

[1] The pus was allowed to flow under a valve of carbolic oil on lint.

Annual Meeting.

The report of the scrutineers of the ballot for the election of officers (Dr. Geo. Granville Bantock and Dr. W. C. Grigg) was read, from which it appeared that the following list of office-bearers recommended by the Council had been unanimously adopted.

Honorary President.—Sir Charles Locock, Bart., M.D.

President.—John Braxton Hicks, M.D., F.R.S.

Vice-Presidents.—John Clay (Birmingham), Henry Gervis, M.D., Henry M. Madge, M.D., Gustavus C. P. Murray, M.D., David Lloyd Roberts, M.D. (Manchester), John Scott, F.R.C.S.

Treasurer.—Edward John Tilt, M.D.

Honorary Secretaries.—W. S. Playfair, M.D., J. J. Phillips, M.D.

Honorary Librarian.—Alfred Wiltshire, M.D.

Honorary Members of Council.—William Tyler Smith, M.D., Henry Oldham, M.D., Robert Barnes, M.D., John Hall Davis, M.D., Graily Hewitt, M.D.

Other Members of Council.—James H. Aveling, M.D., James Watt Black, M.D., John Brunton, M.D., J. Brendon Curgenven, M.R.C.S., James Fowler, M.R.C.S. (Wakefield), George Gaskoin, M.R.C.S., Samuel Day Goss, M.D., Thomas Taylor Griffith, F.R.C.S. (Wrexham), William Edmund Image, F.R.C.S. (Bury St. Edmunds), John Rutherford Kirkpatrick (Dublin), Draper Mackinder, M.D. (Gainsborough), John Baptiste Potter, M.D., Adolphus A. F. Rasch, M.D., William Richard Rogers, M.D., Henry Savage, M.D., Leonard William Sedgwick, M.D., Heywood Smith, M.D., Henry Wilson Sharpin, F.R.C.S. (Bedford).

The Report of the Auditors of the balance sheet for 1871 (Drs. Squarey and J. Meaburn Bright) was then read, from

which it appeared that the income of the Society during the past year was £774 17*s.* 2*d.*, and its expenditure £634 7*s.* 9*d.*, leaving a balance of £140 9*s.* 5*d.*; of this £128 3*s.* 5*d.* had been invested in consols, increasing the amount of the Society's funded property to £1284 8*s.* 9*d.* The adoption of the report was proposed by Mr. Scott, and seconded by Dr. Aveling, and carried unanimously.

The following report of the Honorary Librarian was then read and adopted on the motion of Dr. Meadows, seconded by Dr. Rogers.

Mr. President and Gentlemen,—I am happy in being able to assure you of the increasing usefulness and satisfactory condition of the Library and Museum.

Since the last Annual Meeting the term for which the Society originally held the rooms has expired; a new agreement has, however, been entered into with Mr. Barkentin for a like period of three years at a slightly increased rental, which is rather nominal than real.

The salary of our efficient sub-Librarian, who is a member of the profession, has also been slightly augmented.

Owing to the deplorable war between France and Germany, the number of foreign works added to our collection has been smaller than usual; but care has been taken to procure all that were obtainable. The additions to the Library have amounted to 175 volumes; 33 of which were purchased, and the remainder presented. A very valuable donation of a few rare works on the pelvis has been promised by Dr. Arthur Farre, F.R.S. The number of visitors to the Library continues steadily to increase.

It may be remarked that, besides its ordinary uses, the Library is additionally useful to the Society for the purpose of holding extra-council meetings and meetings of special committees, such as the Temperature Committee, the Pelvis Committee, the Educational Committee, the Library Committee, &c. It is also valuable as enabling the obstetricians of the metropolis to show a graceful courtesy to foreigners

and other strangers visiting London; and I am authorised to say that many gentlemen who have availed themselves of the advantages the Library affords have highly appreciated the privileges they have enjoyed.

It is further valuable as affording means for the formation of a museum which promises to become both important and, in course of time, extensive. The Council has liberally made arrangements for the reception of select specimens, and it is hoped that many such will in due course be presented to the Society.

A few necessary articles of furniture have been procured at a trifling cost.

The following plan for the examination of midwives recommended by the Council, and involving an addition to the bye-laws, was then considered.

BYE-LAWS—CHAPTER XVI.

I.—That an Examining Board be formed, consisting of Six Members; viz.:—A Chairman, three ordinary Members, and the Honorary Secretaries, *ex officio*. (The Two Non-official Members of the Board longest in office to retire annually).

II.—That Examinations be held at the Society's Library, on the second Wednesdays of the months of January, April, July, and October, at Eight o'clock p.m., or at such times as the Board of Examiners may from time to time determine.

III.—That Candidates for admission to the Examination be required to submit to the Honorary Secretaries of the Society Certificates of the following qualifications at least fourteen days before the date of the Examination:—

(*a.*) A Certificate of moral character.

(*b.*) A Certificate showing that the candidate is not under Twenty-one years of age, and not over Thirty years of age; but that up to the year 1877, Candidates above Thirty years of age be admitted to Examination

under special circumstances satisfactory to the Board of Examiners.

(*c.*) Proof of having attended the practice of a Lying-in Hospital or Charity for a period of not less than six months; or of having personally attended not less than twenty-five labours under supervision satisfactory to the Board of Examiners.

(*d.*) Proof of having attended a course of Theoretical Teaching by Lectures or Tutorial Instruction, the details of which must be submitted to, and receive the approval of, the Board of Examiners.

IV.—That the Candidates be required to pass—

(1) A Written Examination.—(2) An Oral and Practical Examination, upon the following subjects—

(*a.*) The Elementary Anatomy of the Female Pelvis and Generative Organs.

(*b.*) The Symptoms, Mechanism, Course and Management of Natural Labour.

(*c.*) The indications of Abnormal Labour, and the emergencies which may occur in practice.

(*d.*) A general knowledge of the Puerperal state.

(*e.*) The management of new-born Children and Infants.

(*f.*) The conditions as to Air, Food, Cleanliness, &c., necessary for health.

(*g.*) The duties of the Midwife with regard to the Patient, and with regard to the seeking of Medical advice.

V.—That, on satisfying the Board of Examiners as to her qualifications, the Midwife should receive a Diploma certifying that she is a skilled Midwife, competent to attend natural labours.

VI.—That the Fee for this Diploma be one Guinea; and that unsuccessful Candidates be required to pay a Fee of Five Shillings.

The adoption of the proposed addition to the bye-laws

was proposed by Dr. Graily Hewitt, who said that he had much pleasure in proposing to the Society a very important resolution, to the effect that the Society should at once institute an examination for midwives. The Council of the Society began seriously to consider this subject while he had the honour of holding the office of President; and the proposed plan was the result of the continuous and matured consideration of the matter by the Council, now happily, as he believed, to be concluded. The plan recommended involved the institution of an examining board, composed of six Fellows of the Society, the examination to be held quarterly, to consist of a practical testing of the competency of the candidates to practise as midwives, and of the possession on their part of such an amount of knowledge as would enable them to recognise the presence of difficulties, and the necessity for at once procuring competent professional aid for their patients. It could hardly be necessary for him to dilate on what was so well known to the profession, viz. the great ignorance and incompetence of vast numbers of practising midwives, nor of the loss of life which thus resulted; the attention of the Society had been forcibly drawn to that in the reports on the subject of infantile mortality procured recently from London and the provinces. That a formal guarantee of the efficiency of practising midwives was urgently required no one could doubt. This examination would supply that. It might be said, possibly, that the institution of such an examination was the duty of the Government or of the Royal College of Physicians or Surgeons, or the Society of Apothecaries. He was afraid that little was to be expected from Government action at present, though ultimately it might be hoped that this action of the Society would result in legislation on the subject. Nor was it to be expected from the general governing medical bodies. In fact, what was every one's business was the business of no one; and, under these circumstances, this Society had stepped forward to initiate what was, he believed, universally admitted to be a laudable object, one, indeed, of pressing necessity. This Society was instituted for the purpose of

promoting knowledge in all that relates to the subject of obstetrics, and the diseases of women and children. The institution of this examination would, he felt sure, do very much practically to carry out those great objects.

Dr. Routh stated that his first impression was that this measure belonged more to some college than to the Society. On reflection, however, and judging from the long delay that the colleges would not take it up, he thought that some other learned body ought, and, if so, what body better qualified than this Obstetrical Society? and how manifest the advantages of having well-educated midwives? Now-a-days, any woman (generally some ignorant mother of children) of the lowest ranks of society, who might not be able to read or write, and who was incapable of otherwise earning a living, might become a midwife. No examination, no test of knowledge was necessary. What numbers of unfortunate women and children had been murdered through the ignorance of such midwives already. If every Fellow of the Society were to record his experience of such murders, the very hairs of our legislators (whom he could not certainly denounce so severely as had been done for their supineness in such matters) would stand up on end. Occasionally we did meet with educated midwives. He could speak of some educated by one Fellow of the Society—Dr. J. Hall Davis. The comfort of these midwives to himself he (Dr. Routh) had found very great. It was notorious that many of these uneducated midwives could not even draw off the water for a patient. There was another reason for taking this step. Strong-minded women were on the increase, and sooner or later many would be found in the ranks of the profession. He only hoped when they were in it, there would be found more than the two French ladies whose names would be handed down to posterity with honour. He alluded to Madame Boivin and Madame Lachapelle. But if the better classes of strong-minded women entered our ranks, we might rest assured that they would find imitators in a lower strong-minded class—such would invade the province of midwifery. If so, it was important to test more accurately their knowledge, and certainly this Society could

do it well. These resolutions of the Society would also, perhaps, induce smaller colleges and hospitals to open classes for teaching midwifery to these women. When our legislators found the machinery existing, and the good so done, then they would soon make such examinations compulsory as a matter of course. This Society, therefore, he (Dr. Routh) thought, under the circumstances, did well to take the initiative.

A discussion ensued, in which Drs. Heywood Smith, Aveling, Bantock, Grigg, Playfair, Mitchell, Wiltshire, Rogers, Phillips, and J. Hall Davis took part, after which the plan recommended by the Council was carried unanimously.

On the motion of Dr. Tyler Smith, seconded by Dr. J. Watt Black, the following gentlemen were elected to serve on the examining board:

Dr. J. Hall Davis, *Chairman*, Drs. Aveling, Meadows, and Leonard Sedgwick, with the Honorary Secretaries *ex officio*.

A vote of thanks to the retiring Vice-Presidents, and to the office bearers of the Society, was proposed by Mr. Gaskoin, and seconded by Dr. Day Goss, and carried unanimously.

The President then delivered the Annual Address.

ANNUAL ADDRESS.

Gentlemen,—It has been said that the life of a man must be reckoned rather by the work he has done than by the number of his days; and the same is true of such a Society as ours in these times of rapid progress. Sir Thomas Brown says,

"He that early arriveth into the parts and prudence of age, is happily old without the uncomfortable attendants of it; and it is superfluous to live unto grey hairs, when in a precocious temper we anticipate the virtues of them." Can this be said of us? The answer it becomes us to leave to others. Still, it is well every year to see what we have done, and what we are doing.

After the copious review of past work given by your late President, it is unnecessary for me to dwell on this point; but so far as the papers and discussions of the past year are concerned, I think we may take credit for not being behind the former years both in work and interest—I mean, if we may take credit at all for doing our duty; for, as Bacon remarks, "I hold every man to be a debtor to his profession; from the which, as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves, by way of amends, to be a help and ornament thereunto."[1]

But you must not judge of the whole work of the Society by that which appears in our 'Transactions;' a large amount of action is quietly but vigorously carried on by the various committees. You who have not been on committees can hardly understand the amount of exertion which is required.

You have already given your opinion on the work of one committee. As you have this evening heard, your Council felt, in consequence of movements in various directions, that they would not be carrying out the programme of advance it has laid out for itself, unless the question relating to midwives was put before you. A committee was formed, which at numerous meetings discussed this and collateral questions; and with the assent of the Council it was thought best to put it into a definite shape, at any rate as a tentative measure.

It will be seen that in the scheme the *minimum* of study, considered absolutely necessary, has been prescribed for women acting as midwives under medical supervision, or, as Miss Nightingale defines it, "midwifery nurses."

[1] 'Maxims of the Law.'

No doubt, after experience gained by further practice and reading, they would be more reliable. But with this amount of knowledge they never could be trusted to act quite separately from, nor in antagonism to, fully qualified medical men. If ever it should come to pass that women are allowed to practise midwifery separately from us, then it will be necessary for them to be educated as fully and as completely as men, in unity with them so far, at least, as that the professors of one are professors of the other, and not in separate schools. Either this, or simply helpers.

Picture to yourselves half educated persons handling the sound, hysterotome, the crotchet, and other dangerous instruments of midwifery. Imagine their treatment of those dangerous complications which attend women in either pregnancy, parturition, or lying-in. Imagine the condition of a school of midwifery carried on by women, or by any one not thoroughly acquainted with general medicine or surgery, continuing the education of others in a similar manner. I need not point out the state of stagnation in which they would find themselves in a few years.

Two standing committees have been formed on *scientific* subjects, one to gather information relative to the temperature of parturition and the puerperal state, under Mr. Squire as chairman, and Dr. Edis as secretary. This Committee has constructed a form for a reporting paper, which has been sent to those working on the subject, and will be forwarded to any one willing to assist in the matter on application to Dr. Edis or our honorary secretaries. The chairman has already given us one contribution on the subject, but we require still more extensive observations before we are in a position to arrive at the full knowledge of the natural temperature, and of the many causes of its variation.

It only requires that each Fellow of this Society take one case thoroughly during the coming year, and by next anniversary we should have sufficient to show the substantial advantage of a committee, and the power of association for the collection of facts.

The second Committee (under Dr. R. Barnes as chairman, and Drs. Wiltshire and Heywood Smith as Secretaries) has devoted itself to the collection of pelves and fœtal heads. It purposes first of all to obtain those of the healthy of various races of man; and secondly, those which are deformed, together with their history as regards their origin and effect upon labour. They have communicated with the Obstetric Lecturers in the United Kingdom, and with many abroad. The time is too early for them to have materials sufficient for publication, but I may say that the answers already received are most satisfactory; and we have already a munificent donation from one of our Honorary Fellows—Dr. Arthur Farre—of twenty-four normal and abnormal pelves, with illustrated works on these subjects.

These committees have been selected chiefly from non-official Fellows; but as it is impossible to know all who would feel an interest in the subjects, our secretaries would be pleased to receive applications from any Fellows for the inclusion of their names.

There are still many subjects upon which it is very desirable to obtain information. I might name one which should be the first to receive attention, namely, "the effect of zymosis, &c., on the pregnant and puerperal woman." For, although we have made some progress in this direction, yet much remains to be done.

One thing has been learnt, and this one we cannot be too earnest in constantly proclaiming, namely, that we cannot be too careful in separating the lying-in women from all contact with zymotic diseases, and the contamination of other animal poisons. In whatever manner these act, there can be no doubt of their effect; and we need not wait for the settlement of the germ theory to put our knowledge in practice. But, perhaps, for a short time we have as much work in hand as we can get through satisfactorily at once.

Still, I may be permitted again to repeat, that while a Society like this gives opportunity for the expression of individual opinions, it is also a powerful medium for the

collection of facts with a rapidity and amplitude impossible by single hands.

It may also be the means of obtaining an expression of combined opinion on a question of practice; but I doubt whether we should gain much by a frequent repetition of this, inasmuch as such an opinion, possessing, as it would do, a kind of *ex cathedrâ* force would, perhaps, trammel practice for a longer time than desirable. The free expression of opinion, such as occurs at our debates, will generally form a sufficient guide to enable intelligent men to distinguish the current line of practice, and to judge for themselves.

I am happy to say that our numbers have not decreased, indeed, they have slightly increased, reaching now 597.

Our financial position is also equally satisfactory and stable, as you have had already shown to you.

It is a subject of much congratulation that our volumes of 'Transactions' continue to be so highly valued abroad. During the past year we have sold about 120 volumes, thus adding to our income £64. And this leads me to make an observation on a point which has more than once been brought under the consideration of your Council by Fellows who seldom have an opportunity of being present at our meetings, namely, that this disadvantage entitles them to a reduction of their subscription, because, they say, they only receive the volume of 'Transactions' in return.

Gentlemen, these objectors forget to include at least two other important items. Is it nothing, in the first place, that they are in active association with a large number of their fellow practitioners? and that, without further trouble, they can place themselves in communication with our Secretaries, in order to bring forward any interesting case which may occur to them?

Is it nothing that they can personally assist in the great work of progress, by adding the information they possess to our various Committees, such as those to which I have already alluded?

Is the stimulus each of us cannot fail to receive by the

principle of association to be counted as nothing, at a time when a man is remote in the country, and wearied by work?

In the second place, does he not receive something in the shape of return by the labours of the various committees?

Again, they forget that the Library is a lending one, from which they can have books transmitted to them for a very slight additional cost. Besides, should they be in London at any time, they have a room of call where they can read and write.

While upon the finances I may remark that, although your Council have not laid by so much income as in the early years, considering that the amount already funded a nearly sufficient reserve, and that the sum could be more advantageously expended on the library and Committee work, yet they have placed £120 during the year in the funds.

Death has been somewhat busy during the past year amongst us. We have lost two honorary, and six of our ordinary Fellows, and of these I will, as is our custom, and as is our only satisfaction, give a short notice.

Honorary Fellows.

Pietro Lazzati, Director of the Milan Lying-in Hospital, died of apoplexy on 22nd March, 1871. He was a pupil of Lovati. Lazzati worked with the greatest energy and success. His practice has been faithfully illustrated and recorded by his assistant Dr. Gaetano Casati, in the annual reports of the before-named institution. He himself published many memoirs, among which the most remarkable is one on the 'Mechanism of Labour by the Shoulder.' This monograph is one distinguished for clearness and accuracy of observation. He was, as a citizen, distinguished as a man of heart and active philanthropy, of excellent presence, and of frank and manly bearing. There is a good photograph of him in our library.

M. le Baron Paul Dubois, Honorary Dean of the Faculty of Medicine of Paris, Senior Professor of Clinical Obstetric, Member of the Academy of Medicine, Commander of the Legion of Honour, &c., died at the age of 76 at Courteille,

of bronchitis. M. Dubois did not share the fate of most of our great men; he knew little of the difficulties which accompany the start in the medical career, for his father Antoine Dubois, who was Senior Surgeon to the Maternité, caused him to be appointed assistant-surgeon to that hospital in 1820. Here he gained such experience that in 1825 his father retired in his favour, and he became Professor and Senior Surgeon. In 1834 the Faculty thought it advisable that clinical instruction in obstetrics should no longer be excluded, and it was therefore decided to elect some one to fill that post. After a severe contest, M. Paul Dubois was elected, and this choice was soon ratified by public opinion. Directly after his election he displayed those exceptional qualities—precision and elegance of language—which for twenty-five years made him such a distinguished professor. His voice was soft and harmonious, he lectured with method, and he liked to reproduce his ideas in a variety of forms—for he considered it before all things desirable to be understood. He was as skilful in obstetric operation as he was attractive in the lecture-room. His great principle was, before interfering, to leave a great deal to the efforts of nature, yet not to pass reasonable limits. He also carried diagnosis to the highest degree of perfection possible.

For nearly twelve years before his death a veil came over his great intellect, which, gradually becoming denser, and destroying one by one his many brilliant faculties, ended by annihilating them all, and permitting only a vegetative existence. When he found his memory failing him, he understood what would happen to him; he put his affairs in order, and awaited his fate with courage.

Being averse from writing, he was not a voluminous author; nevertheless, his memoirs on the 'Mechanism of Labours' stands as an evidence that he was as adroit in the art of writing, and as clear in description, as he was brilliant in lecturing.

Ordinary Fellows.

Thomas Hawkes Tanner, M.D. St. Andrew's, M.R.C.S., Member Royal Coll. Physicians, Fellow of the Linnæan Society, died on 7th July, 1871, at Brighton, after about three months' cessation from active practice. Dr. Tanner was educated at King's College, and became M.R.C.S. in 1847. The next year he was appointed Physician to the Farringdon Street Dispensary. In 1850 he became a Member of the College of Physicians, and for a time lectured on Forensic Medicine at the Westminster Hospital. In 1857 he was elected Physician to the Hospital for Women in Soho Square, and held that office for six years. It was here he laid that foundation of the reputation he enjoyed later in life in the treatment of diseases peculiar to women. In 1858 he took an active part in the formation of this Society with Dr. Tyler Smith, Dr. Rigby, and Dr. Graily Hewitt, and acted as one of its Secretaries up till 1863. In 1860 he was elected Assistant Physician-Accoucheur at King's College Hospital, which appointment he held till 1863.

He was Vice-President of this Society from 1863 to 1865. After this date his presence at our meetings was not so frequent. His practice had become by this time very large and laborious, though not exclusively special. This alone would have occupied the attention of most men, but such was his unconquerable energy that he found time for bringing out his works, of which editions followed editions with a rapidity which must have exceedingly taxed his vital powers. The principal of these are:—

1. 'Practice of Medicine;'
2. 'On the Signs and Diseases of Pregnancy;'
3. 'Manual of Clinical Medicine;'
4. 'Practical Treatise on the Diseases of Childhood;'
5. 'Memoranda on Poisons;'
6. 'Index of Diseases;'
7. 'Clinical Report of Female Sexual Organs.'

And many articles and reviews contributed to the medical journals.

In 1854 he had an attack of scarlet fever, which left

evidence of renal congestion. This never entirely passed off; but it was not till within four months of his death that signs of Bright's disease became unmistakeable. He gave up practice for a time, as he thought, but in about a month before his death convulsions set in, which, continuing with increased frequency, terminated his life after great suffering. He was married in 1859, and left a widow with four children.

His mind was remarkably clear, well ordered, and methodical; his memory excellent and well stored. As already shown, his mental energy was indomitable. It was owing to this that his vital powers were unduly taxed, and not allowed the necessary time for recovery after disease. Upon a large and complete success he had set his mind, but only at the expense of his life did he attain it.

Alexander James Low, M.R.C.S., L.R.C.P. Lond., of St Breladeo, Jersey, was educated at St. Bartholomew's Hospital, dying at the early age of 30.

John Griffith Goulstone, M.D., of 30, Clarence Street, Liverpool. He took his degree from the Georgetown University, Washington, belonged to several medical societies, and took an active interest in many medical subjects, upon which he wrote. He died March 12th, 1871.

Henry James Shirley, F.R.C.S., of Ash, Kent, was elected Fellow in 1860, and died July 25th, 1871.

Thomas M. Kendall, F.R.C.S., of King's Lynn, Norfolk, Surgeon to the Prince and Princess of Wales at Sandringham, was born in 1820, died 1871. He studied for the profession at St. George's Hospital; was House-Surgeon to the West Norfolk and Lynn Hospital, of which he continued surgeon for sixteen years afterwards, and shortly before his death was made Consulting Surgeon. He was an Alderman of the Borough of King's Lynn, and Member of the British Medical Association, and filled other appointments with great credit.

John W. Middleton, of Brussels, L.R.C.P., M.R.C.P. Edin., having been for five years Fellow of this Society, passed from among us at the early age of 33.

Dr. Nathaniel Heckford was born at Calcutta in 1842. He pursued his medical studies at the London Hospital, where his career was unusually brilliant. When cholera broke out in 1866 he threw himself with his accustomed energy into the work of combating that dire disease, and worked both night and day, with his friend Dr. Bathurst Woodman, in the Children's Hospital at Wapping. In 1868 he founded the East London Hospital for Children and Dispensary for Women, which was opened with ten beds, in a warehouse bought by him for £2000, the freehold of which he presented to the Committee of the Hospital in 1870. It rapidly increased to forty beds. How he and his wife worked for the welfare of this hospital has been graphically told by the late Charles Dickens, in his paper entitled "A Small Star in the East." It is not too much to say that his labours, and the consequent anxieties, laid the foundation of the pulmonary disease which proved fatal on the 14th December, 1871. He published several papers, some of which appeared in our 'Transactions.' (The above brief sketch is taken from a notice in the 'Med. Press and Circular.')

In conclusion, allow me to thank you for the support you have given me in the performance of my functions, to thank the Secretaries for the energy with which they have at all times rendered both me and you assistance, and to hope that this year may show that this Society still possesses that vitality which, by a kind of magnetic impulse, has hitherto descended from my predecessors.

A vote of thanks to the President for his admirable Address was proposed by Dr. J. Hall Davis, and seconded by Mr. Mitchell, and carried by acclamation.

FEBRUARY 7TH, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—37 Fellows and 6 visitors.

Books were presented from Dr. A. Meadows, Miss Florence Nightingale, Professor Rizzoli, Dr. T. Zaaijer, and from the Royal Northern University of Christiania.

The following gentlemen were admitted Fellows of the Society:—Dr. Robert Bell; Dr. Thomas Bridgwater; Mr. T. W. Evans; Dr. R. H. Hilliard; and Mr. Robert Jalland.

The following gentlemen were elected Fellows:—J. N. Agnew, M.D., Toronto; Norman Bethune, M.D., Toronto; Charles H. Carter, M.D.; William Hope, M.D; Albert Hunt, M.R.C.S.; John E. Kennedy, M.B., Toronto; Mark Konrád, M.D., Pesth; John Griffith Lock, M.A., L.R.C.P., Tenby; George Parr, M.R.C.S.; William L. Richardson, M.D., Boston, Mass.; John D. Shapland, M.R.C.S., Croydon; James Algernon Temple, M.D., Toronto; and N. Tolotschinoff, M.D., Kieff.

Dr. F. R. HOGG, R.H.A., exhibited photographs of the Military Lying-in Hospital at Woolwich. He said that at eight military stations there are hospitals for the wives and children of soldiers, chiefly intended for cases of parturition, consequently infectious diseases are not admitted under the same roof. Last year out of 832 deliveries 3 women died; namely, at Aldershot, Colchester, and Portsmouth. Through

the courtesy of Drs. Mackenzie, Allen, Macbeth, Fergusson, Good, McNalty, and Adcock, he was able to state the number of deliveries at each. At Aldershot 358, Chatham 56, Colchester 67, Curragh 59, Portsmouth 63, Plymouth 44, Shorncliff 47, and at Woolwich 138. Soldiers' wives are wanderers, here to-day and off to-morrow, unable to form local ties. A woman very reluctantly leaves her home, her husband, and her children to the mercy of chance, to come into hospital; the children fall into the fire, the furniture is stolen, and the husband in solitary discomfort may take to drinking. A nursery to look after children when the mother is sick, or even when well, engaged increasing her income by washing, would be a great boon. At Aldershot the hospital is splendidly worked and greatly appreciated, the nursing conducted by sisters to whom the greatest credit is due; they and the medical officer constitute one splendid piece of machinery equal to any emergency. As to the hospital at Woolwich the statistics of mortality occurring amongst women after childbirth show, during ten years, one per cent.; but no rule can be deduced from this. In 1863, 1864, 1865, out of 344 deliveries there were no deaths. The last fatal case here happened December 5th, 1870, that of a woman removed in labour from her home to hospital, there delivered of a putrid fœtus, the placenta diseased, fever setting in. The next previous death was in December, 1869. So that out of the last 278 cases, calculating from December, 1869, to January, 1872, but one death has taken place. As to infantile mortality about 7 per cent. would almost represent the number. A woman has been confined one night and sailed for India the next. And another was confined on the gravel outside; but as a rule they stop in bed ten days, returning home on the fourteenth. One woman aged 15, two aged 16, and one aged 46, represent the extreme of ages.

The hospital, a one-storeyed building, consists of two large wards, each with a smaller ward attached. There is a thorough communication between the two, but a passage where the doors are constantly open dilutes and diverts the current of air. The parturition ward, adapted for ten

patients, is 40 feet long, 24 broad, and 14 high. There is one fireplace and two gas burners provided with bottomless lanterns so that the products of combustion never enter the room. Each patient has 1483 cubic feet. The thermometer in July stood 69° and in December 47° Fahr. on the average. There are many windows with ventilators between; the walls are very thin. The evening temperature during the months mentioned stood 71° and 50°.

The general ward, of the same height and width as the other, is 67 feet long, and has a stove in addition to the fireplace; the evening temperature in July stood 68°, in December 54°, and this is too cold for cases of bronchitis, pleurisy, pneumonia, phthisis, rheumatism, &c. In this ward 89 women and 54 children were treated last year. At various times injuries, burns, scalds, fractures, indeed, excepting scarlet fever, variola or typhus, any cases are eligible, but for the reasons above stated the wards are seldom full, it is often a matter of surprise there are patients at all. A number of screens have been provided by generous ladies, which can be used round each bed on cold nights. He liked the low temperature; it prevents scarlet and other fevers being developed, many of the general cases unfortunately come in moribund. The Government defrays the lion's share of expense, and a fund amounting to £120 a year, collected in the garrison, does the rest. It is very difficult to retain good nurses in garrison towns, but there were sisters here under the matron, and a crêche for children during the mothers' absence; the hospital might be greatly improved, and in course of time one might with a certain feeling of pride say, "Circumspice."

Dr. J. J. Phillips exhibited a cedar pencil, four inches long, one end of which was covered with a large calcareous mass, which he had extracted from the bladder of a girl, æt. 18. The pencil had been passed into the vagina six months before the patient came under observation, and she was unable to remove it. For the first four months it gave rise to no pain or inconvenience, but she then began to

suffer from an irritable bladder, and for six weeks there had been incontinence of urine. When admitted into Guy's Hospital, under Dr. Phillips's care, the urine was found to dribble away by the vagina; one end of the pencil could be felt free in the vagina on the left side of the os uteri; the other end had pierced the vaginal wall, passing in a direction forward and to the right; and by means of a sound in the bladder a rough body could be detected in it. An unsuccessful attempt had been made before admission to extract the pencil by the vagina; a similar attempt in the hospital also failed. Two days afterwards the patient was placed under the influence of chloroform, and it was then found that the pencil had passed still further into the bladder. By gentle pressure on the vaginal end the whole of it passed into the bladder, the urethra was then rapidly dilated by Weiss' dilator, and the pencil seized with forceps and extracted. The part which had lodged in the bladder was covered with a large phosphatic calculus, a considerable portion of which broke down during extraction. On the second day the patient said she had a little control over the bladder. On the fourth day no urine escaped by the vagina, and she could hold her water for two hours or longer. The girl left the hospital ten days after the removal of the pencil, and was obliged to empty her bladder only three or four times in the course of the day. A small cicatrix could be felt in the vaginal wall, marking the position of perforation from the vagina into the bladder.

The case was brought forward as an example of a rare accident. It did not appear that there were many similar cases on record. A case, under the care of Mr. Prescott Hewett, was published in the 'Medical Gazette' for 1854, in which the neck of a glass bottle after long retention in the vagina had ulcerated into the bladder, a calculus then forming around its vesical end. The bottle was extracted by the vagina, and subsequently the calculus in the same manner. Mr. Poland remembered a case in Guy's Hospital many years ago, in which a vesical calculus had partly passed into the vagina; the vesical and the vaginal ends

of it then continued to increase by calcareous deposit, while an intermediate part was of smaller diameter; it thus formed what was called a "bar-shot calculus." The case now reported seemed interesting also in showing the rapid closure of the vesico-vaginal fistula after the withdrawal of the foreign body; and was a further illustration of the advantage of rapid dilatation of the urethra under chloroform. The patient after dilatation, enough to admit two or three fingers into the bladder, had on the third or fourth day no incontinence of urine.

ON THE PROBABLE ORIGIN OF CERTAIN FORMS OF CYSTIC DISEASES OF THE OVARY.

By Alfred Meadows, M.D.,
PHYSICIAN-ACCOUCHEUR TO, AND LECTURER ON MIDWIFERY AT, ST. MARY'S HOSPITAL; PHYSICIAN TO THE HOSPITAL FOR WOMEN.

There is still so much obscurity and doubt as to the origin and cause of ovarian dropsy that it is important, I think, in order to determine these questions, so far as we are able to do so by examination of specimens, that we should record every fact which seems to bear upon the subject; and it is with this view that I venture to bring forward this case and preparation, because I think that it seems to illustrate at least one of the probable causes of this disease.

The patient from whom this tumour was removed was 29 years of age, single, and had suffered from abdominal enlargement for about two years. The catamenia had always been regular, occasionally painful, moderate in quantity. I first saw her in the beginning of January, 1872, and had no difficulty in diagnosing the existence of ovarian dropsy, fluctuation was so extremely distinct that I ventured

to predict a unilocular cyst, and as no pain whatever had been experienced I hoped that no adhesions would be found.

I performed the operation for the removal of the tumour on the 3rd of February. The cyst proved to be unilocular, the fluid, amounting to one and a half gallons, was very thin and pale, the cyst itself was thin also; there were no adhesions, and the collapsed cyst was drawn through an opening no more than three inches in length—hardly so much. The pedicle was tied with a ligature and returned into the pelvis. The patient made a complete and rapid recovery, being convalescent in a fortnight.

On examining the tumour I found that the cyst was formed as it were at the root of the ovary; that, in fact, it had been developed at its attached border, the rest of the ovary, including the whole of its free surface, being perfectly independent of the one cyst. All these points are very well seen in the annexed illustration. It will be observed that the ovary, with several Graafian follicles on its surface, is situate on one side of the cyst and is almost independent of it, the latter being, as it were, developed in the folds of the broad ligament at the root or attachment of the ovary. The Fallopian tube is represented as encircling the tumour for at least half its extent, a piece of silver wire was easily passed from its free or fimbriated extremity round to its cut end, as is shown in the drawing; and on close examination the fimbriæ themselves could easily be traced in an exceedingly stretched and attenuated form over the cyst from the end of the tube nearly up to the ovary itself, fibres being spread out fan-shaped in all directions, but with a general inclination towards the ovary. It is important to observe this relationship, because it is upon this fact that I ground the following hypothesis as to the probable origin of this and similar cases of ovarian disease:—

We know that ordinarily in the healthy and normal performance of ovulation, the Graafian follicles make their way from the centre to the free surface of the ovary, where they escape into the Fallopian tube, the latter having grasped the ovary by its fimbriæ at the seat of rupture. We know

nothing at present as to the law which governs this process, nor why it is, or how it comes to pass, that the ova do, as a matter of fact, ordinarily develope in the direction indicated. But it is not difficult to conceive of the possibility of some occasional interference or perversion of this process, by means of which ova, instead of developing towards the free surface of the ovary, take a contrary direction and work their way towards the attached instead of the free border of the organ. In such a case, supposing the Graafian follicle has reached the root of the ovary, and is at the junction of the broad ligament, it is obvious that its further progress will be barred by that structure, it cannot therefore escape, and one of two things may happen to it; either it may die and be absorbed and nothing further come of it, or this happy termination may not occur, but it may go on developing and developing from the formative power which is inherent in it, and thus give rise to very serious structural lesions in the ovary itself.

It is in the belief of such a possibility that I exhibit this specimen, because I think it is strongly suggestive of such a view. It is evident, I think, that this cyst was developed originally at the point I have indicated, and I see nothing improbable in the idea that it may have originated in the way I have suggested. There is another point which seems to me corroborative of the view here taken, viz. that the large cyst was lined with an epithelial or cellular layer precisely similar to that which was found in the interior of the Graafian follicles or cavities which are indicated on the surface of the ovary.

Moreover, the view here taken is, I think, entirely consistent with other known facts in physiology and pathology. I believe that increased experience and observation will prove the close and intimate relationship which exists between the physiology of a part or organ and its morbid processes or lesions. In this sense, pathology is only perverted physiology: and just as the so-called hydatiform degeneration of the ovum is but an enormously hypertrophied decidua, brought about by perverted physiological action, so

the ordinary Graafian follicle with its increased effusion of serous fluid may by the same process become an enormous ovarian cyst, or by the repetition of such a process, a multilocular tumour may result.

If we apply this reasoning to the case before us, the facts appear to me to be fairly reconciled, and I know of no more satisfactory explanation of the origin of these growths. It is clear that these unilocular and multilocular cysts of the ovary must have had an origin, and equally clear that in their early beginnings they must be of a very limited character. Looking at the ovary, as it appears in the drawing annexed, it does not require any very great stretch of imagination to suppose that a multilocular cyst might have developed from it as it is, there are indications of possible elements of mischief wanting only some slight impetus to set the morbid process at work, that impetus, as I believe, was given to the one cyst, it was happily wanting in the others. At all events, without claiming for this hypothesis anything more than an occasional and possible application, I venture to put it forward as one certainly not unreasonable, in the hope that it may at least help to elucidate a doubtful point in pathology, though I can hardly dare to hope, at least not in the present state of therapeutical science, that more accurate knowledge of pathological process, as applied to this particular disease, will help us to check, or control, or divert the morbid action when once it has begun. At the same time I am convinced that the only secure and rational basis of therapeutics must be founded upon an exact and accurate estimate of morbid process, seeing that the object of the healing art is to counteract such processes. It is in this way that pathology becomes of so much practical importance and is capable of affording such valuable help to clinical medicine.

Dr. WILTSHIRE without wishing to throw doubt on Dr. Meadows' ingenious and not improbable explanation, asked whether the possibility of the cyst having arisen from the parovarium had been entertained by him.

Dr. Bantock believed the specimen to be one of cyst of the par-ovarium. He had recently removed from a patient a specimen which, in addition to its showing an admirable instance of prolapsus of the ovary (left), indicated the pathology of these cases very clearly. It shows a cyst of the par-ovarium as large as a small walnut, encroaching on the ovary, and it is easy to perceive how its enlargement must necessarily involve the ovary, and, perhaps, lead to cystic disease of that organ. On the opposite side is another about one eighth the size. His observation of a large number of ovariotomies led him to believe that when the disease originated in the ovary, such tubercular disease is always found, to a greater or less extent, while in the cases under consideration a single cyst, with the ovary at the base, is the most frequent if not invariable condition, the ovary retaining its functional activity to some extent.

The President suggested that cysts originating from the par-ovarium would probably always be simple, and yet the Fallopian tube is found passing round the half of the tumour, both in compound and single cysts. He thought the explanation given by Dr. Meadows the most probable one; at any rate, in the compound cysts.

CASE OF VAGINAL THROMBUS.

By Robert Jalland, M.R.C.S., Horncastle.

On the 22nd of September, 1871, I was called to a young girl in her confinement. She was about 20 years of age, a primipara, unmarried, and had been in labour ten hours.

On examination I found the head low in the pelvis, and the os fully dilated, but the pains were weak and inefficient. I also noticed some enlargement of the right labium, and a fulness at the posterior part of the vagina, which latter I attributed at the time to a loaded condition of the rectum.

Finding after a full dose of ergot that the pains did not improve; and, as my patient was becoming exhausted, I applied the short forceps, and extracted the child without the slightest difficulty.

A second child now presented (breech presentation), which was expelled quickly in a few pains, and was shortly followed by the two placentæ. Up to this time no hæmorrhage had occurred.

Upon making an examination to remove any portion of membranes or clot which might have remained in the vagina, I was surprised to find the vagina occupied by a globular tumour the size of my fist, projecting from its posterior wall; it was firm, smooth, and unyielding, and I was endeavouring to make out its extent and attachments when, to my horror, it appeared to suddenly burst in my hand, and in a moment the bed was deluged with dark venous blood, in such profuse quantity that my patient almost immediately became pulseless and unconscious. I at once gave a dose of ergot, and applied cold wet napkins to the abdomen and vulva, but the hæmorrhage continued as profuse as ever, though the uterus itself was firmly and perfectly contracted. I then introduced my fingers into the vagina, and found a rent in the posterior surface about two inches and a half long, from which the blood continued to flow in a stream; on each side of the rent the inner coat of the vaginal wall appeared to be separated for half an inch. Finding that I could restrain the hæmorrhage by pressure upon the parts, I kept my fingers firmly applied for upwards of half an hour, after which no further bleeding occurred, and my patient gradually rallied. The following day I found her cheerful and comfortable. There had been no return of the hæmorrhage, and she was already suckling her two infants.

On inquiry I learned that she had been suffering from a varicose condition of the veins of the right labium, and superficial veins of right thigh, and had felt a fulness and sense of weight in the lower part of the vagina for some weeks before her confinement, which at times prevented her from taking exercise; but, concluding it was nothing unusual, she had not made it known to her friends.

I am pleased to say she has continued to make a good recovery.

As is well known, a varicose condition of the labia and

nymphæ during pregnancy is not uncommon, but there are peculiarities in this case which seem to make it worthy of recording.

1st. The moderate size of the varicose tumour, and the absence of further enlargement during the progress of labour. 2ndly. That it offered no hindrance to the expulsion of the child. 3rdly. That there was no apparent increase in its size until the placentæ were expelled. 4thly. The rapid enlargement and spontaneous rupture which followed the final contractions of the uterus, due probably to the sudden influx of blood from the uterine into the vaginal plexus of veins.

On examining the patient about a month afterwards, I felt a roughness where there had been a rent in the vagina, the rent had healed up, and nothing abnormal could be detected.

ON RETROFLEXION OF THE UTERUS AS A FREQUENT CAUSE OF ABORTION.

By J. J. Phillips, M.D. Lond.,

ASSISTANT OBSTETRIC PHYSICIAN TO GUY'S HOSPITAL; ASSISTANT PHYSICIAN TO THE HOSPITAL FOR SICK CHILDREN; AND PHYSICIAN TO THE ROYAL MATERNITY CHARITY.

The object of this short paper is to elicit discussion on a cause of abortion which I believe to be a very common one, and which appears to be insufficiently noticed in most of the ordinary text-books on Midwifery. Reference will also be made to some cases of retroflexion of the uterus in which repeated pregnancies had terminated in abortion, but in which the recurrence of this accident was prevented in a subsequent pregnancy by simply restoring the uterus to, and maintaining it in, its natural position during the early months of gestation.

The subject of retroversion of the gravid uterus appears to have first attracted attention in consequence of the patient's inability to empty the bladder; and the existence

of this displacement is now familiar to most practitioners in connection with retention of urine about the third or the fourth month of pregnancy. There probably is no obstetrical writer who does not refer to this complication, and the statement is added by many authors that, if the uterus remain in this position, it becomes strangulated in the pelvis, and abortion may result. This last is doubtless a common termination in those cases where the uterus does not regain its normal position, though it must be admitted that many exceptional cases are on record in which the displacement continued to a late period of pregnancy, and a few even in which it was persistent to the full time of gestation.[1] Cases of *retroversion* of the uterus *with retention of urine* and terminating in abortion are therefore well recognised; but it seems to me that a still larger number of cases of pregnancy is met with, resulting in repeated early abortions from the *retroflected* state of the uterus, but whose true nature is apt to be overlooked, as they are not necessarily accompanied by any severe or well marked urinary troubles.

My attention was first directed to this subject by observing the large number of women attending as out-patients who gave the history of frequent abortions; and although I was not sanguine enough to expect (considering the various and frequently complicated causes which lead to the premature expulsion of the ovum) that the cause of the accident could in all cases be made out, either from the history furnished by the patients, or from their condition when coming under observation, still, I have made it a practice among my out-patients to ascertain by a vaginal examination whether any marked disorder of structure, or of position of the uterus could be found to exist in such cases. The result of this practice has been very strongly to impress me with the belief that the chief factor in the production of a large proportion of the cases here referred to is a displacement of the uterus backwards. I am well aware that a source of fallacy

[1] Merriman, 'Dissertation on Retroversion of the Womb,' 1810; Oldham, Obstet. Trans.,' Vol. I, &c.

is very liable to creep in here, and that among those who attend the out-patient departments of hospitals, it is a common practice to walk about soon after an abortion, and that the enlarged uterus, under such circumstances, is very liable to descend in the pelvis, and in its descent to become then, for the first time, retroflected; and, further, that this displacement after an abortion, as, indeed, after labour at full term, may, under favorable circumstances, become spontaneously rectified with the completion of the process of involution. These, however, are not the cases here referred to, but rather those in which the retroflexion is a permanent condition, existing before the supervention of pregnancy, and continuing during the earlier months.

It is not intended to be implied by these remarks that abortion is believed to be the almost invariable termination of pregnancies complicated with a retroflected state of the uterus, for it is not very uncommon to notice the ascent above the pelvic brim about the third or fourth month of a previously completely retroflected uterus, especially when certain precautions are observed by the patient, and, indeed, occasionally under conditions apparently most unfavorable for its restitution. Nevertheless, making due allowance for cases terminating thus favorably, retroflexion of the uterus appears to be so efficient a predisposing cause of abortion that it should occupy a leading position in an enumeration of the local disorders tending to the production of this accident.

I cannot find any reference to this displacement as a cause of abortion in the well-known text-books of Churchill, Murphy, Milne, Miller, or Cazeaux.

Dr. Ramsbotham, Dr. Tyler Smith, and Dr. Meadows, in their works on Midwifery, state that displacements of the uterus may lead to abortion, and retroversion is noticed by them, though not prominently, among the local causes, as the following extracts will show.

After enumerating various causes, Dr. Ramsbotham says: "Prolapsus or retroversion of the uterus may cause premature expulsion of the ovum, so also may constipation if it exist

in such a degree as that powerful straining is required for the evacuation of the bowels."

"Coitus, plugging the os uteri, disease of os and cervix, procidentia, anteversion and retroversion, may all cause abortion." (Tyler Smith, 'Manual of Obstetrics,' p. 139.)

"Among the other causes may be mentioned local diseases or displacements of the uterus, ulceration, chronic inflammation, and hypertrophy of the cervix." (Meadows, 'Manual of Midwifery,' p. 120.)

Dr. Meadows, indeed, in speaking of repeated miscarriages mentions a case which appears to be a typical example of the class to which I refer. He says, "In one instance which came under my own observation a lady had aborted seven times successively, when it was discovered that there was retroflexion of the uterus. This was cured, and the patient afterwards had a child at full time." (p. 120.)

Dr. Barnes, in his lectures on obstetric operations, fully enumerates the various causes of abortion, and, under the head of mechanical anomalies, includes retroversion and the pressure of tumours outside the uterus.

I have only quite lately carefully read a paper by Dr. Tyler Smith in the second volume of the Society's 'Transactions,' probably the most valuable paper that has been published on the etiology of retroversion of the gravid uterus; and, although the author is therein chiefly occupied in proving that this condition in most cases results from the impregnation of a previously retroflected uterus, yet he incidentally remarks in relating the history of one of the cases upon which the paper is based that, "the tendency to miscarriage is so strong in cases of retroversion that I have little doubt some of the cases of habitual abortion met with in practice depend on this cause." A careful perusal of the cases recorded by Dr. Tyler Smith in illustration of the main point of his paper cannot fail to convince us also of the truth of the passage just quoted from that distinguished author.

I am not able to furnish from personal observation any statistical data as to the comparative frequency of the various

causes of abortion, but so many cases in which this has repeatedly occurred about the third month have come under my notice in which I have found retroflexion of the uterus, and a few with a similar history whose progress I have been able to watch during the early months, that I think this displacement is second in importance to none of the local conditions which tend to the premature expulsion of the ovum.

There is a great variety in the amount of local discomfort complained of by these patients during the first three or four months, as, indeed, is found to be the case in the subjects of retroflexion and enlargement of the unimpregnated uterus. Generally, however, a sense of discomfort and weight in the pelvis, bearing-down pains, pain in the groins, frequent micturition, occasionally dysuria, and straining in defæcation, are the well-known symptoms of this condition; and it would be tedious to relate individual cases of the kind, though I have preserved records of several such. In some instances the patients referred their trouble to imperfect convalescence after a preceding labour, leading one to believe that owing to some interruption to the process of involution the uterus had then descended and become retroflected. I do not, however, in this paper speak of cases where abortion has resulted from the tying down of a retroflected uterus by perimetric adhesions. I have occasionally found that difficult micturition was not a very prominent symptom, the explanation in such cases probably being that the uterus was excited to the expulsion of its contents before it had attained such a size as of necessity to interfere mechanically with the passage of the urine. My impression is that many cases of this kind occur, especially among the lower classes, where retention of urine does not result, and consequently no medical advice is sought, and no local examination instituted; cases, in short, in which women are generally said to have acquired the habit of aborting.

There is one point in the clinical history of these cases which must be noticed, as it has some bearing on the treatment, and that is the fact that an uterus which has repeatedly

shed its contents may in a subsequent pregnancy ascend above the pelvic brim without any artificial help, the pregnancy terminating in labour at term, while again, on still subsequent occasions, a series of abortions may result. I cannot doubt that the retroflexion was the main cause of the abortion in the following case, though an intermediate pregnancy was not interrupted in its course.

Mrs. W—, æt. 31, married nine years. Had three children at term. Then succeeded at least four abortions between the third and the fourth months. After this a living child was born at the normal period, but a subsequent pregnancy terminated in abortion at the third month. The patient again became pregnant, and consulted me when advanced a few weeks, complaining of uncomfortable bearing-down pains in the pelvis, sickness, and irritable bladder. I found the uterus much retroflected, and it was enlarged, and up to the end of the third month there was no indication of its tendency to ascend. I have not lately seen this patient, and I fear she has again aborted. She said that she suffered from dysuria in each of her pregnancies after the first three; this symptom commenced early in the second month, and continued to the third or the fourth month, when with one exception, as stated, the ovum was expelled.

There are, indeed, but few conditions which theoretically seem more favorable to the production of abortion than this displacement. If the uterus do not ascend above the pelvic brim when large enough to fill the pelvic cavity, its ineffectual efforts to ascend during its growth have, at least, in the great majority of cases, the effect of exciting the organ to expel its contents. Many of the cases, however, do not proceed thus far, and in one of the last instances which has come under my observation, where from the history and physical conditions not much doubt could be entertained that this displacement was the cause of four successive abortions, not one of the pregnancies proceeded further than early in the third month. The increased susceptibility of the retro-

flected pregnant uterus to concussion from sudden movements, the mechanical irritation to which it may be subjected, the straining in micturition and defæcation, often aggravated by the constipated state of the bowels in early pregnancy, and the irritation which the abnormal position of the uterus sets up, seem all to be very efficient excitors of uterine action. Further, a not unimportant factor in the production of abortion may be found in the interference with the uterine circulation in some cases of marked retroflexion, tending to the effusion of blood between the uterus and the placenta, and this in its turn exciting uterine action or leading to the death of the ovum.

It remains for me briefly to notice two cases in which very simple treatment was effectual in preventing the recurrence of abortion.

Mary C—, æt. 36, came under my care at Guy's Hospital, on August 13th, 1870. She was the mother of six children, all born at the full time. Since the birth of her last child she had aborted six times, all within the period of three years. Each of these abortions had occurred between the end of the second and the end of the third month of gestation. She complained of weight and bearing-down pains in the pelvis, straining at stool, and forcing in micturition; and all these were aggravated each time she became pregnant.

No constitutional cause of abortion could be made out. She was pale and appeared depressed, probably from the recurrent abortions. The uterus was retroflected, the cervix appeared healthy, and the body was not materially enlarged. Finding that the uterus remained retroflected I restored it, and introduced a Hodge's pessary. Soon after this she again became pregnant, and attended occasionally during the first two or three months of her pregnancy, but finding herself suffering but little from her usual uncomfortable symptoms, I did not see her again till she had arrived at the end of the sixth month. I then found the uterus occupying its normal position in the abdomen, and I withdrew the pessary. The patient was confined at the proper time, and subse-

quently presented herself at the hospital, with her infant, to report her satisfactory progress.

Mary W—, æt. 35, was admitted into Guy's Hospital under my care on the 8th February, 1870. She also was the mother of six children, all born alive at term. She had always enjoyed good health both during her maiden and married life until her last confinement, which took place in July, 1868. In the year 1869 she aborted twice at the tenth week of gestation, once in the month of July and again in November. Her complaints were of forcing pelvic pains, and of menorrhagia. I found the uterus larger than natural and retroflected. The cervical lips were superficially abraded, and a very small mucous polypus existed at the os uteri. No treatment was adopted except the removal of the small polyp and the introduction of a Hodge's pessary. A few small doses of secale were also given at the menstrual period which occurred during her stay in the hospital, as this, like the preceding ones, was prolonged, and the loss of blood rather profuse. The patient left three weeks after her admission, feeling much relieved. After wearing the pessary for some time she desired to see whether she could dispense with it, but returned in a fortnight to have it replaced. The uterus was again retroflected. Soon after reintroducing the pessary the patient became pregnant, and felt very little discomfort during the early months. Between the fourth and fifth month I found the uterus reaching half way to the umbilicus, and, therefore, I removed the pessary. This patient lived in the country, and the last time I saw her she came up to the hospital to state that her pregnancy was proceeding naturally, and that she expected to be confined in a very few weeks.

The treatment in cases such as the above, where the patients come under observation with the uterus at the time not tenanted, seems clearly indicated; namely, to restore the misplaced uterus and maintain it in a position favorable for its ascent when pregnancy takes place. A difficulty, however, presents itself in dealing with cases of retroflexion when pregnancy has already occurred; and in the few such instances which have come under my care I have been con-

tent with giving general directions in reference to the bladder and the rectum, and recommending the observance of the horizontal posture. That on the face or side, as advised by Dr. Tyler Smith, is evidently the best. I was guided in this by remembering cases of pregnancy in which I had observed the uterus previously retroflected and low in the pelvis spontaneously ascend even within a few days, and I feared lest my interference might accelerate that which I desired to prevent. The result of my practice, however, has been unsatisfactory enough, and a difference of opinion will doubtless exist as to how far it is advisable in cases under continuous observation to aid the uterus in its efforts to ascend by air pessaries or otherwise.

There is another point of interest related to the subject of this paper, which, in conclusion, I would simply mention. I refer to the influence of retroflexion in causing imperfect deliverance in cases of abortion. My own experience has been too limited to enable me to form an opinion of its comparative frequency, and I will merely state that some of the cases which I have seen of long retention of a portion of the ovum after abortion have been cases complicated with retroflexion of the uterus.

Dr. Tilt admitted that any considerable amount of uterine displacement was a cause of abortion, but he asked Dr. Phillips whether his cases were instances of uncomplicated uterine displacement. Dr. Tilt had frequently seen chronic inflammation of the womb cause successive abortions, the liability to which ceased on the uterus becoming healthy, so he thought it would have been better if the author had stated the amount of pathological complication, if any, that had been noticed in addition to the uterine displacement, for, if considerable, it should be admitted as lending its influence to the determining of abortion.

Dr. Bantock could not agree with Dr. Tilt, for he had always believed that *inflammation* of the uterus was a decided bar to the occurrence of impregnation, but he agreed entirely with the accuracy of the observations made by Dr. Phillips as to the frequent occurrence of abortion as a result of displacement of the uterus whether backwards or forwards. He took exception to the looseness with which the terms retroflexion and retroversion were

employed by the author as if synonymous. He had notes of several cases of abortion from displacement. The first occurred about six years ago, in a patient the subject of anteversion. The use of a Hodge's pessary with long anterior limbs carried the patient over the fatal period, but its removal at her request resulted shortly after in abortion. The last case was one still under observation, in a patient suffering from *retroversion*. This patient had passed into the fourth month, and was still wearing the instrument, and his intention was to leave it till the uterus had risen well out of the pelvis. In reply to Dr. Barnes, Dr. Bantock contended that *true inflammation* did very materially interfere with impregnation, that the cases of repeated abortion at short intervals were not cases of inflammation at all, and that rest alone sufficed to tide them over the fatal period. He had before his mind the case of a lady who could not bear a living child without lying up for about six months, and who, so surely as she did not take this precaution, as surely aborted. He complained of the looseness with which the term inflammation was used.

Dr. Routh thought the remarks made by Dr. Tilt were more in accordance with his experience that those of Dr. Bantock. The existence of sores, ulcerations, &c., during pregnancy was common, and if complicated with a diseased uterus and much congestion, perhaps subacute metritis, would alone suffice to produce abortion. He had often met with such examples, and treated them. Flexions of the uterus, whether anteflexions, or retroflexions, were, in his experience, much more frequently the causes of *sterility* than of *abortion*. He did not then recall a single case in which he knew that pure uncomplicated flexion had existed before pregnancy, and in which afterwards pregnancy occurred, where abortion followed; but he was quite aware of cases where the flexion was complicated with ulcerations and congestions in which this had occurred. It appeared to him, therefore, that the flexion was not so much the cause of the abortion as was the *complication* which co-existed. This co-existence was, he thought, often the *essential* element to abortion; because it was indubitable that many women known habitually when not pregnant to have their uteri flexed, yet when pregnant, went the full term with several children, perhaps one after another, and never once miscarrying. In like manner ulcerations of themselves could not necessarily produce abortion. Many such cases got well. Besides, one observer, he thought Dr. Henry Bennett, had called attention to the fact that in a large number of cases when menstruation existed during pregnancy this was due to *abrasion* or *ulceration* of the cervix co-existing, and yet these women had not necessarily aborted. Lastly, in the cases mentioned by Dr. Phillips of successive and repeated abortions, Dr. Phillips had not sufficiently insisted that such cases were not affected

with syphilitic taint, a common and well recognised cause of *repeated* miscarriages. He, Dr. Routh, invariably in such habitually miscarrying cases gave small doses of bichloride of mercury, even in those instances where he had no *certainty* of the existence of syphilitic disease, and with the happiest results, even in cases of marked flexions. The class of cases related by Dr. Phillips were peculiar. He spoke of *out-patients* in hospital practice at Guy's; now, although Dr. Routh felt bound to pay the highest tribute to Guy's Hospital, which had produced some of the cleverest physicians and surgeons in the realm, yet the locality of Whitechapel and the Borough was notorious for the extent of syphilis prevailing there, and thus many of Dr. Phillips' cases might have been tainted. It was most important, therefore, that this source of fallacy should be *especially* noted in the cases brought forward as instances of abortion from flexions of the uterus.

Dr. Rasch said the thanks of the Society were due to Dr. Phillips for so ably bringing forward this practical subject, but it would decrease its usefulness to the practitioner, if in its discussion other well-known causes of abortion, like syphilis, were introduced. The subject of the paper was a certain well-defined mechanical cause of abortion, which must be familiar to all engaged in obstetric practice, and Dr. Rasch could fully subscribe to the author's views. In one point the paper might have been more distinct, as it affected therapeutics. The author had made no distinction whatever between two forms of retroflexion which to Dr. Rasch seemed not without practical importance. He gave two cases as types, one of the simple traumatic or acute retroflexion of the healthy gravid womb, produced by some external violence, with sudden retention of urine, in which repeated catheterism and one reposition cured the retroflexion acquired two days previously. A pessary was not necessary in this and in similar cases, and gestation was not interrupted. Different from these simple traumatic cases were those in which the retroflexion was due to alterations in the textures of the organ. Retention of urine was here no prominent symptom, in fact, Dr. Rasch never had observed it. If the uterus were redressed it would almost invariably fall back again unless a pessary (Hodge's) was applied, which should be left up to the fifth month of pregnancy. Dr. Rasch had not the slightest doubt that a great many abortions were thus prevented, *especially if the patients be enjoined to lie on their knees and elbows* whenever they feel uncomfortable as to the right position of the pessary. This prone position he could not strongly enough recommend, the more so especially if air was allowed to enter the vagina in the way he had shown on another occasion. But it should be done daily for half an hour while in bed. Patients very soon found out the value and comfort of it and

practised it. Dr. Rasch's experience of retained placenta after abortion made him fully concur with the closing remarks of the author's paper, that retroflexion was a frequent cause of the retention.

Dr. Wynn Williams, whilst fully agreeing with the author of the paper to a certain extent, also agreed with those gentlemen who had already spoken. As regards the observations made by Dr. Tilt no one for a moment could deny that ulceration and inflammation of the cervix uteri were opposed to impregnation and were occasionally the source of abortion, yet how often whilst treating diseases of the cervix do we find impregnation take place and the patient go the full time. Again, retroflexion and also other displacements of the uterus will act as a bar to impregnation, and are a frequent source, should impregnation take place, which no doubt occasionally does happen, of abortion, but not invariably. As to constitutional syphilis being a cause of abortion and premature births, every one connected with a public hospital could not fail to have observed it both in the "east" and in the "west," and yet this is not always followed by abortion or we should have no congenital syphilis; in fact, no hard and fast line can be laid down. Dr. Williams could relate a series of cases of displacements of the uterus where the displacement had been the cause of the abortion, but would content himself by stating that he, like the author of the paper, had long been in the habit of treating retroflexions of the uterus during the early months of pregnancy by the introduction of a Hodge's pessary and leaving it *in sitû* until after quickening, or, more properly speaking, until the uterus had risen above the brim of the pelvis. He would only relate one case, and that a case of retroversion—not retroflexion, and would here remark that he considered retroversion a much more likely cause of sterility than retroflexion, especially when the os gets jammed under the pelvis, as in complete retroversion. A young woman, married some time without family, was found to be suffering from complete retroversion. This was rectified and a Hodge's pessary introduced. Soon after she became pregnant, and desired the pessary might be removed; this was unwillingly done. The uterus fell back into the old position, the patient aborting. A pessary was again introduced, and again she became pregnant and went the full time, the pessary having been left in until after the fifth month of utero-gestation.

Dr. Barnes assumed that the author of the paper clearly meant retroflexion as distinguished from retroversion. His own experience entirely confirmed the author's conclusion that retroflexion was a frequent cause of abortion. It had been observed by other speakers that retroflexion was a common cause of sterility. Both propositions, although seemingly contradictory, were undoubtedly true. It was necessary to bear in mind that

there were two different forms of retroflexion. The first kind he believed to be congenital, at least it often came under observation in young women who had never borne children, and who were suffering from dysmenorrhœa. This form was very common; it was often associated with narrow os externum uteri, and dysmenorrhœa and sterility were the consequences. These consequences were generally only cured by putting the uterus into its proper place and dilating the os. The other form was also not uncommon. It might be called acquired retroflexion. It arose generally after a labour; the heavy, imperfectly contracted and involved body of the uterus falling back whilst the parts were in a state of relaxation. In this case pregnancy would often occur and end in abortion. With reference to the suggestion of Dr. Tilt that the author might have overlooked inflammation of the cervix, or some other complication which might have been the cause of the abortion, he would observe that it was hardly possible to find a pure case of retroflexion. This displacement necessarily induced morbid conditions of tissue, especially engorgement of the body of the uterus, and dilatation of its cavity. These secondary conditions might be concerned in producing the abortion, but still the retroflexion was the essential cause. Nor could he, Dr. Barnes, assent to the observation of Dr. Bantock, that inflammation or abrasion of the cervix uteri was a constant cause of sterility. It must be familiar that women frequently conceived whilst under treatment for this affection, and that, in fact, they often conceived so quickly that they had no chance of getting cured. The great remedy for retroflexion was Hodge's pessary. He always urged that it should be worn during the early months of pregnancy where there was retroflexion, in order to obviate abortion. He thought Dr. Phillips' paper would be useful in drawing attention to an important clinical fact.

The PRESIDENT had little to add to the excellent remarks which had fallen from the last speaker (Dr. Barnes) except to say that from the position of the retroflected uterus a tendency to abortion might be *à priori* anticipated, for not only was the organ exposed to concussion from movements of the body, coitus, &c., but, in consequence of the dependent position, there were three inches addition to the column of blood, the gravitation of which would retard the return into the veins, and thus assist in extravasation and consequent death of the ovum. And, with regard to the increased difficulty in the discharge of the dead ovum alluded to by the previous speakers, he could say that, so far as his experience went, he had found that in eight cases out of ten of abortion, to which he was called in consultation, there was a retroflected uterus.

Dr. PHILLIPS said the object of the paper had been fully attained in the interesting discussion which had taken place. He

was glad to find that the experience of several of the speakers agreed with his own; and the excellent remarks which had fallen from Dr. Barnes were an answer to some of the objections raised. In reply to Dr. Bantock he said that the term "retroversion" occurred in the paper in quotations from authors, and when reference was made to the cases described in the text books of retroversion about the fourth month with retention of urine, but elsewhere the word "retroflexion" was used, and this last condition as a frequent cause of abortion was the special subject of the paper. While he (Dr. Phillips) believed with Dr. Rasch, that some cases of retroflexion occurred suddenly during pregnancy, yet he thought these cases were few in number, and that the explanation offered by Dr. Tyler Smith was the true one, that in the majority of cases the displacement existed before the supervention of pregnancy. It was to this latter class, and to its treatment, that the paper specially referred; hence the omission of remarks on the treatment of the acute cases by simple catheterism, &c. He quite agreed with Dr. Routh that syphilis was a frequent cause of abortion, but he had endeavoured, as far as he could, to exclude this cause and other constitutional causes from the cases, upon which the paper was founded; and in the two cases given in detail, no antisyphilitic remedies were given and yet the recurrence of abortion was prevented by wearing a Hodge's pessary.

CASES IN PRACTICE.

By John Bassett, Esq.,
PROFESSOR OF MIDWIFERY IN QUEEN'S COLLEGE, BIRMINGHAM.

Accidental hæmorrhage; fatal in seven hours, without delivery.

At 2.30 p.m. on the 4th of September, I was requested to visit Mrs. E—, whom I found under the care of my friend Mr. Waterson. He informed me that his patient had been in her usual health up to 11 a.m., when, on her return from a walk, she informed her servant that she felt very unwell, with a pain in her stomach. From this time the symptoms grew rapidly worse, and when I saw her she was in an extreme

state of collapse. Her features were pinched; the surface of the body was cold; the pulse scarcely to be felt at the wrist. She complained of intense pain and tightness at the scrobiculis cordis, with a feeling of impending suffocation. The symptoms were at this time those of internal hæmorrhage, but it did not appear quite clear as to where the blood was being poured, since she had arrived at the eighth month of her third pregnancy without any unusual signs having manifested themselves. There was now no evidence of uterine action, and an examination per vaginam did not detect anything unnatural in that quarter. The uterus, as examined through the abdominal wall, was of the size corresponding to the period stated.

I visited her again after an interval of two hours, when I found most distinct uterine action had set in, and that blood had begun to trickle from the vagina. Pressure was now applied to the abdomen, the membranes were ruptured, and the ergot of rye administered. The collapse was so great that this was considered all that it was desirable to do. Time did not permit the os to be sufficiently dilated to introduce the hand. She died seven hours from the commencement of the symptoms, the labour having made no real progress.

At a post-mortem examination it was found that a portion of placenta, about one third, had become detached; this part was the seat of disease; the lobes were flattened and hardened with a yellow deposit, so that they had not recently been the medium of nutrition to the child. The placenta was at its most common site; the other part of it appeared quite healthy. The child, which was lying in the first position, was of average size, and fairly nourished. Several large coagula of blood lay behind the detached portion of the placenta, in a *cul-de-sac*, which they had formed for themselves by pushing the uterine wall backward. The blood had not flowed forward at all, as the membranes over the whole of the front of the uterus were in apposition with the uterine wall, and were not stained by the hæmorrhage. Death appeared to have resulted more from shock and pressure than from actual loss of blood.

Placenta prævia without hæmorrhage at the time of delivery.

So unique a circumstance as the occurrence of placenta prævia without hæmorrhage at the time of delivery deserves to be placed upon record. On the 28th of May, 1871, I attended Mrs. P—, who had previously borne several children. She came under observation on the 4th of April preceding, for a smart attack of hæmorrhage which came on without pain or any warning about 4 a.m. It did not return, and in a few days she was enabled to resume her household duties. Early in the morning of the 13th of April I was again consulted for a similar attack. An examination externally and internally led to a negative result, but from the freedom and spontaneity of the hæmorrhage it was judged to be due to placenta prævia. The patient rapidly recovered from the depression, and in a few days I met her walking in the street. From this time the hæmorrhage did not return.

On my being summoned to attend her in her confinement I found that regular uterine action had been established two hours. The *os* was then dilated to the size of a shilling; the placenta could be distinctly felt as far as the finger could reach; there was merely a draining of blood. I decided to leave the case to nature, watching for ulterior symptoms. Delivery took place in six hours from the time when I first saw her, without anything worthy of note transpiring. The child, a male, was of fair size, but very thin. The placenta was found to be *oval* in shape. The small end of the oval had been over the *os*. The lobes of this part had lost their soft, spongy character, were firm to the feel, whitish looking; only two of them retained their red colour; they were consolidated and nearly bloodless.

Rupture of a varix in the genital organs during pregnancy; syncope; recovery.

On the 19th July, 1871, at 10.30 p.m., I was hastily summoned to attend Mrs. D—, who was said to have been seized

with a flooding. On my arrival I found that she had recently returned from a walk, during which she had been greatly frightened, and this caused her to hurry home. Shortly after her clothes were found to be deluged with blood. On my arrival she was blanched and faint. The nature of the case was at once suspected, from my having recently read in the 'Obstetrical Society's Transactions' of a fatal case which had occurred in the practice of Mr. Houghton, of Dudley. The patient was put carefully in bed; the external genitals were examined, and found to be covered with blood, but no hæmorrhage was then present, and no open vein could be seen. Cold and pressure were employed, and restoratives given internally. From this time no untoward symptom presented itself; the loss of blood was recovered from slowly. The pregnancy, which was approaching the sixth month, was not in any way interfered with.

Destruction of the uterus by a severe labour.

In June, 1871, I was consulted by Mrs. R—, who furnished me with the following history of her case. She was confined on the 4th of June, 1866, with her first child. For several weeks previous to the commencement of labour she was unable from her size and weight to take much exercise; the labour set in on the third day before her delivery, by an escape of water; the pains came slowly at first, but subsequently increased in frequency and force, so that they were regular and strong on the second day. On the third day the pains were less powerful, and she was so exhausted that she was scarcely conscious of what took place. The accoucheur in attendance called in a friend, who effected the delivery by the forceps, of a large male child, which was dead. From this time she continued very ill for a month, with pain in the abdomen, feverishness, and a copious discharge of matter from the vagina. By the end of the third month the discharge had entirely ceased, and she had regained a fair amount of bodily strength. Since this time she has had no

menstrual period, and recently has not been troubled with "the whites." At the times corresponding to the monthly period she has pain in the lower part of the abdomen and back, a sense of weight and fulness. The pain is sometimes severe, amounting to "spasms," and not unfrequently terminates in sickness or diarrhœa, and sometimes in both. At the end of twenty-four hours it usually subsides, and nothing further is perceived until the next epoch.

A careful examination of this patient alone, and subsequently assisted by my colleague Mr. Clay, revealed the fact that the uterus had been nearly destroyed by sloughing, ulceration, and cicatrisation. The speculum revealed the upper part of the vagina crossed by white lines, giving it the appearance of a cicatrix from a burn. A small nodule of reddened tissue, probably part of the cervix, projected beyond the white lines for half an inch; no trace of the os uteri could be found, nor was their positive indication as to its former site. Mr. Clay thought he could feel the line of the fundus through the vaginal wall with his finger, but expressed his opinion that a large portion of the body of the uterus had been destroyed. The question of affording an exit for any monthly discharge which the remaining portion of the uterus might secrete was talked over, but as we could learn nothing as to the whereabouts of the cavity, it was thought better to let the case alone.

Dr. Barnes, in answer to the President's question whether others had observed placenta prævia without hæmorrhage, said he had himself seen such cases and had quoted cases of the kind from Mercier, Caseaux, and others. They illustrated his theory of the physiology of placenta prævia. It was one of his positions that hæmorrhage was not an absolute necessity when there was placenta prævia. In the particular case just read, the reason why there was no hæmorrhage was probably because that part of the placenta which came within the lower zone of the uterus had undergone such alteration of structure that it had ceased to be in vascular relation with the uterus, whilst the remaining portion being attached to the middle zone did not become separated until after the birth of the child. In the case of "accidental hæmor-

rhage," the flooding might have been due to the placenta growing within the lower zone, and thus being really a case of placenta prævia, a circumstance often overlooked. But since the placenta was described as having undergone morbid change, this had probably led to its premature detachment. It was, in fact, an illustration of what he had long ago pointed out, namely, that that fatty degeneration of the placenta was a cause of "accidental hæmorrhage."

Dr. WILTSHIRE thought that in the first case narrated the use of Dr. Barnes's india-rubber dilator might have been of material service. He had found them invaluable in like cases.

MARCH 6TH, 1872.

J. BRAXTON HICKS, M.D., F.R.S. President, in the Chair.

The following gentlemen were admitted Fellows of the Society:—Dr. C. H. Carter, Dr. W. Gardner, Dr. W. Hope, Mr. James Lattey, Mr. J. D. Locke, and Mr. J. D. Shapland.

The following gentlemen were elected Fellows:—George Bland, L.R.C.P. Lond. (Macclesfield), Alexander Fergusson, F.R.C.S. Edin. (Peebles, N.B), Albert Kisch, M.R.C.S., Wm. H. Mondelet, M.D., and George Rigden, M.R.C.S. (Canterbury).

Dr. A. E. MARTIN presented the Cephalotribe invented by his father, Professor Martin, of Berlin, and said:—

My father, an honorary fellow of your illustrious Society, desires me to present to you this specimen of his cephalotribe. The instrument was exhibited at your conversazione in 1866, but as it is neither mentioned in the catalogue nor contained in your collection, although it has been proved during a long experience at Berlin to be a valuable instrument, my father begs you to accept it as an addition to your collection.

The cephalotribe is composed of two blades joined by an English lock. The whole instrument is 43 centimetres long, the handles measuring 19 centimetres, the blades 24 centimetres. The handles are covered with wood, and have transverse grooves for facilitating traction. The left carries the screw which approximates the blades.

These blades have double curves: that for the pelvis

measuring 9 centimetres, that for the head 3·8 cc. The broadest portion of the blades measures 3·6 cc. Both are fenestrated, the fenestræ measuring 2 cc. The upper ends touch over an extent of 2·4 cc. The blades are carefully rounded and sufficiently strong, though not too heavy.

We always perforate before applying the instrument, and it has neither failed in compression nor in traction when its use has been indicated.

We recommend the instrument to your attention.

The PRESIDENT said that the account given of the use of Dr. Martin's Cephalotribe showed conclusively that a tractor instrument was practically of great use in all cases, and he had no doubt that ultimately it would, in general practice, supersede almost entirely other instruments, after perforation, in delivering the head.

The PRESIDENT showed a specimen of Fibro-cystic Disease of the Uterus, the precise relations of which were doubtful. The specimen was referred to a committee consisting of Dr. Madge, Dr. Bantock, and Mr. Spencer Wells.

Dr. HEYWOOD SMITH exhibited a preparation of a fœtus at about the fourth month completely enclosed in a perfect sac, through the wall of which, at about one inch and

a half from its abdominal attachment, the cord passed to the placenta, which was separate, and had the remains of the membranes as usual at its edge.

He said that as attention had been drawn in the 'British Medical Journal' to the subject of "false waters" indicating a separate fluid-containing cavity external to the amnion, or its inner layer, but within the chorion, he thought it would be not uninteresting to show the specimen, where the inner membrane, whatever it was, had shelled out.

The PRESIDENT requested Dr. Heywood Smith to examine the membranes and report to the Society as to their nature.

Dr. HEYWOOD SMITH next exhibited the uterus of a patient that had died four days after delivery of a fœtus at about 5 months, of secondary post-partum hæmorrhage, the cervix uteri having been the subject of cancer.

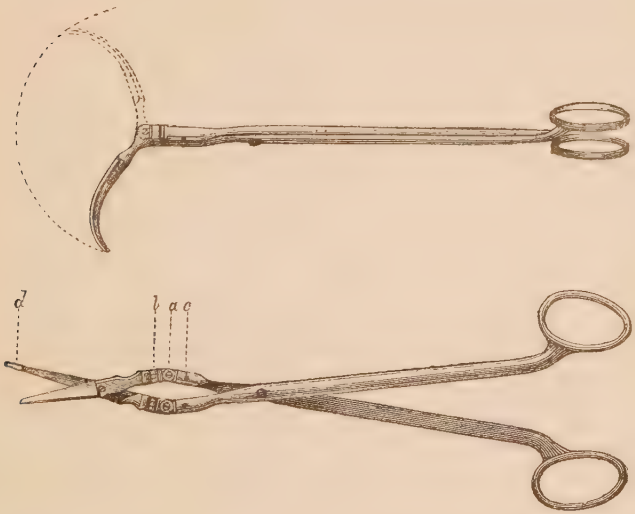
The patient was 39; married sixteen years, had had eight children, no abortions, and had been admitted as out-patient at the Hospital for Women, for pain in the left inguinal region, with a pale and offensive discharge. She believed herself to be about three months pregnant, but the physical signs were rather those of nearer six months. A vaginal examination revealed a growth about the size of a small orange filling the vagina, growing from the anterior lip of the cervix uteri; the posterior lip was small and not entirely free from induration. She was admitted as in-patient, in about a fortnight's time, on December 2nd, for an attack of flooding, from 11 p.m. the previous day till 6 a.m. She was pretty well till the 12th, when, having had uterine pains all the previous night, the uterus was lower. In the afternoon, with some difficulty, because of the growth partly filling the vagina, the os uteri was slowly dilated under chloroform, the posterior lip yielding more than might have been expected, one foot brought down, and the fœtus delivered alive; in the delivery of the head, the carcinomatous mass was protruded from the vulva, and, as was thought best, Dr. Heywood Smith removed it with the écraseur, as also a nodule on the posterior lip. The uterus con-

tracted well; an ergotine pessary was introduced. The patient did well till the third day, when at 4.45 p.m. hæmorrhage came on severely; the pulse was reduced to a mere thread. The next day, at exactly the same time, it recurred, though not to so great an extent: but as flooding took place again at 6 p.m., though iron was injected and the vagina plugged, she never rallied, but died at 12.30. The case was brought forward as it opened up a point for discussion, viz. which was the better practice in cases of severe cancer of the cervix uteri complicating pregnancy, whether to induce premature labour to lessen the risk of the mother, or, if she is advanced, at all events to save the child's life by letting her go her full time, and if the disease precludes delivery *per vias naturales*, to perform the Cæsarian section.

Dr. Phillips said that each case must be judged of on its own merits, but upon the whole he thought the former line of practice was the better one. He referred to two cases in which, notwithstanding considerable malignant infiltration of the cervix uteri, very slow dilatation by the elastic bags enabled delivery to be accomplished with a successful issue to the mother, as far as the labour was concerned.

Dr. Heywood Smith exhibited a new instrument which he called Angular Scissors. When they are straight they constitute a pair of scissors similar to those of Marion Sims. They have, however, this advantage, that the small scissors can be bent at any angle with the handles up to nearly a right angle. To acomplish this it has been necessary to make on each leg of the scissors a complicated joint, consisting of three separate movements within the space of half an inch. The first of these is the ordinary pivot-joint to connect the scissors with the handles, and is the only joint in the legs (besides the central pivots) used when the scissors are straight. Next comes the hinge-joint, by which the scissors are bent at the required angle to the handles on either side. Then between the pivot joint and the handles is inserted a rotatory joint; for when the scissors are bent at an angle, and opened rather widely, there is a strain on

the hinge-joint that is not altogether compensated by the pivot-joint, but the rotatory-joint enables the legs of the small scissors to open with greater ease and without any strain. The reason for the necessity of this joint is thus explained. The short legs of the primary scissors (if they might be so called) on being opened describe arcs of a circle, as would also the legs of the secondary scissors, were they not bound to the primary scissors, and did not a compensation take place by the main pivots approximating. But where the scissors are bent at *e g*, in right angle with the



handles, the legs of the handles describe arcs in one plane, and the legs of the scissors describe arcs at right angles to the handles. But as these two members are bound together by the pivot while traversing arcs in different planes, it is necessary that one pair should rotate more or less at the point of connection of the two movements, hence the insertion of the rotatory-joint. One of the blades is prolonged into a director-point, in front of the other which has a blunt end. The advantage of the director-point is this: in using

ordinary scissors by the touch the finger has to guide and guard two separate points, a proceeding that requires very great care, and even the adjacent parts may be wounded, an accident that might also happen should the necessity arise of dividing a rigid os uteri over a presenting scalp; but with the director-point, which is made flat to facilitate its introduction under any edge of tissue, one blade is easily passed and when its position is determined, then the other blade may be opened without any risk. Inasmuch as the scissors may be bent on either side they will be found useful in dividing the cervix uteri in any position both on the right and left side.

The following report on Dr. Meadows' case of Extra-Uterine Fœtation was then read:

There is little or nothing more to add to the description already given of the external appearances of the specimen than has been given, and depicted in the drawing by Dr. Meadows.

The uterus, about three and a half inches in length, is of normal appearance as regards the left side, the Fallopian tube penetrating the uterus in its usual position near the fundus. The sound passes up the cavity to the fundus readily to the extent of three inches showing no unnatural distortion. The right Fallopian tube is almost lost in the mass of hypertrophied broad ligament. The connexions of the broad ligament of this side are much nearer the neck of the uterus than on the other and much more so than usual. After a very careful investigation the Fallopian tube was found imbedded in the broad ligament, and was seen to penetrate the external wall of the uterus nearly an inch below the fundus, and to run up the muscular structure of the wall several lines before penetrating into the cavity.

Taking into consideration the natural relations of the left side of the uterus as also of the cavity, we are of opinion that the relations of the right Fallopian tube with the uterus is not induced, but is a congenital malformation, and that in all probability the non-passage of the ovum was due to this malposition of the tube.

We are further confirmed in this opinion by the similarity the specimen under consideration bears to one depicted by Jahn, "Dissertatio de utero retroverso," 1787, in Schegel's "Sylloge Operum Minorum," a drawing of which may be seen in the third volume of the Society's 'Transactions,' p. 289, forwarded by one of the reporters, Dr. Aveling.

A. Wynn Williams,
J. H. Aveling,
Alfred Meadows.

REMARKS ON THE PELVIS COLLECTION AND ON PELVIMETRY IN THE ROYAL UNIVERSITY MATERNITY OF BERLIN.

By A. E. Martin, M.D., of Berlin.

The collection of pelves in the Museum of the Royal University Maternity of Berlin contains mostly pelves of women whose cases have been observed during life in that institution. A few pelves of different races have been obtained from various countries. There are also a few casts illustrating varieties of forms not observed till now in the Maternity.

For some time all pelves have been put up as natural preparations, articulated specimens soon becoming useless for scientific purposes. The pelves are classified according to the plan of Professor Martin's 'Hand Atlas.'

The first class comprises normal pelves, and is arranged in three divisions:

(*a*) Adult pelves whose measurements fluctuate within

the normal limits. This division comprises also the few male pelves that are in the collection.

(*b*) Pelves showing gradations from the earliest fœtal state up to adult age. To this division will shortly be added specimens of fœtal heads at all ages.

(*c*) Pelves of various races. Some of these have already been described by Dr. Carl Martin in his paper "Ueber Racenbecken."

The second class comprises pelves whose measurements exceed the physiological limits. We subdivide them into—

(*a*) Pelves whose measurements are excessive in every direction, viz.,

Conjugata vera *exceeding* 120 mm.,
Transverse diameter *exceeding* 140 mm.,

and, proving their regularity, the difference of the oblique diameters must not exceed 10 mm.,

(*b*) Measurements of conjugata vera alone excessive, viz.,

Conjugata vera *exceeding* 125 mm.,
Transverse diameter *less than* 140 mm.,

Difference between the oblique diameters must not exceed 10 mm.,

(*c*) Measurements of tranverse diameter alone excessive, viz.,

Conjugata vera *less* than 125 mm.
Transverse diameter *more* than 140 mm.

Difference between the oblique diameters less than 10 mm.

The *third* class comprises pelves æquabiliter justo minor, *i. e.* pelves whose measurements are equally diminished in every direction or approximatively so.

Among these we distinguish the following pelves:

(*a*) Special diminution of brim measurements; viz.,

Conjugata vera *less* than 110 mm.
Transverse diameter *less* than 125 mm.
Tubera ischiæ *more* than 100 mm.

(*b*) Special diminution of outlet measurements; viz.,

Conjugata vera *less* than 110 mm.
Transverse diameter *less* than 125 mm.
Tubera ischiæ *less* than 100 mm.

The *fourth, fifth* and *sixth* classes comprise pelves with a

special diminution of one diameter in an excessive degree, the other diameters being seldom normal.

In pelves of the *fourth* class the measurements of the *conjugata vera* are specially diminished in consequence either of rachitis or of spondylolisthesis. This class is subdivided as follows:

(*a*) Medium diminution, viz.,

Conjugata vera *under* 105 mm., *but over* 80 mm.

(*b*) Excessive diminution, viz.,

Conjugata vera *under* 80 mm.

In both of these subdivisions the transverse diameter exceeds 125 mm.; the difference of the oblique diameters is less than 10 mm.

In pelves of the *fifth* class the measurements of the *transverse* diameter are specially diminished.

It has been found impossible to make the same objective subdivision in this as in the other classes, as some of the pelves are not amenable to similar rules. Pelves of this class are therefore arranged as follows:

(*a*) Osteomalacic.

(*b*) Pseudo-osteo-malacic:

(*c*) Synosotical, *i. e.* in which the transverse diameter is diminished by ankylosis of both sacro-iliac synchondoses.

The *sixth* class comprises pelves having special diminution of *one oblique* diameter. We subdivide them in—

(*a*) Pelves with ankylosis of one sacro-iliac synchondrosis (Naegele pelves).

(*b*) Pelves with deviation of sacrum to one or other side. This is mostly occasioned by rachitis or by scoliosis of the lumbar vertebræ.

The *seventh* class comprises pelves not distinguished by extreme diminution of the measurements, but by *exostoses* narrowing the calibre of the pelves.

These pelves belong to the most fatal form of deviations; the diagnosis of them being very difficult, if not impossible, and their treatment almost hopeless.

They are subdivided as follows:

(*a*) The edges of the os pubis are sharpened; generally

the tubera of the ilio-pectineal line are pointed and project into the brim.

(*b*) An exostosis covers the sacro-iliac synchondrosis either in part or wholly.

(*c*) Under this head are comprised all other bony tumours of the pelves.

The foregoing is the classification of the Berlin collection. The classification according to supposed causation has been renounced as not affording a means for comprehending the collection at a glance, and besides, such a classification would not be scientific. For instance, if we make a classification comprising all deviations depending on rickets, such classification will comprise nearly all the abnormal forms just referred to in that we have adopted. We know that shortness of the conjugata vera is the most common consequence of rickets. The reason is that the conjugata vera depends on the normal developing of the iliac bones, and rickets being most common in the age of this development, viz. first to fourth year. But besides this deviation, we know that rickets often produces other varieties, or the pseudo-osteo-malacic pelves, as the pseudo-Naegele pelves, and even pelves ubique justo minores, when a general hindrance in the development of the pelves is the result of the rachitical affection. How should all these different forms be classified under one head?

Or to mention another objection, how would it be possible to classify those pelves in which an ankylosis of one or both sacro-iliac synchondroses has caused the deviation? Is the cause of that ankylosis a vitium primæ formationis or an inflammation of the synchondroses? On this point we do not yet agree; and what should be done when we find out that sometimes the former, sometimes the latter, is the cause? We are convinced that the only scientific and reliable classification of pelves collections, which can be made, is one based not upon causation, but upon the deformities themselves.

The basis of measurements in the university of Berlin is that afforded by the tables of Dr. Carl Martin in his 'Durchsch-

nittliche geburtshülfliche und gynækologische Maasse und gewichte,' etc. These measurements were taken from living women in great numbers, and from many of the same persons after death. The tables contain the measurements of adult women during life and those of prepared pelves, the measurements and weights of new born infants and the placenta, and a comparison of the ancient German measuring and weighing system with the decimal system.

The measurements appear to be excessive according to recent measurements taken in other parts of Germany. This is probably owing to the latter having been taken from a smaller number of women, from corpses or from prepared pelves. The experience of many years has proved Carl Martin's average measurements to be very exact for Berlin and its neighbourhood.

The practical worth of the tables has been acknowledged by their having been inserted in the 'Preussischer Medicinal Kalender,' which is a diary for physicians and surgeons based on official data, and largely used by German practitioners.

The measurements are given in metres, as this system of measurement has long been adopted in Germany for scientific purposes and of late—the present year—for all purposes of ordinary life. All the neighbouring countries use the metrical system for scientific purposes, and we trust our illustrious brethren of England will soon follow our example in order to facilitate the communication of scientific ideas.

Before referring to the specimens illustrating the various classes which I have with me, allow me to explain the manner in which we take our measurements in Berlin.

Every woman requiring the assistance of the institution, either at home or at the clinic, is measured in the following manner:

The patient is undressed and placed on her back, measurements are then made of the distances between the spinous processes and cristæ of the ilium. This is done with the portable pelvimeter which I now exhibit.

The points of the instrument are taken between the thumb and the forefinger of each hand, and placed upon the spinous processes outside the insertion of the sartorius muscle on either side.

The distance is easily read on the indicating scale. In measuring the cristæ ilii the points are placed upon the widest parts of the bones which are usually found to be about two inches behind the spinous processes. We then proceed downwards to the trochanters whose measurement is read off in like manner. The trochanters are usually to be felt even through well developed panniculus adiposus. This done, the women are placed on one side, generally in the first place on the left. We then measure the conjugata externa, which we find between the spinous process of the last lumbar vertebra and the upper edge of the symphysis pubes. In the same position we measure the left external oblique diameter, which is taken from the posterior superior spine of the left ilium to the anterior superior spine of the right ilium. Generally the posterior superior spine is easily found because there we find in almost all women a slight depression formed by the adherence of the skin to the fasciæ beneath. This depression was well known to the ancient artists, who imitated it in their statues and torso's of beauties, especially those of Venus in which, it is to be seen in all museums and collections. This depression enables us also to find the spinous process of the last lumbar vertebra, which is about an inch and a half above the level, and midway between the two depressions already referred to. After this the woman is turned to the other side, and we proceed to take the corresponding measurements. Should there be any doubt about the conjugata vera it is again measured. This done, the woman is placed on her back and the circumference of the pelves is taken by placing the tape just under the crest of the ilium.

The conjugata diagonalis is then measured by the finger in the vagina. If possible the index and middle fingers of the left hand are introduced and the sacral promontory is endeavoured to be reached. If it cannot be touched or if the

fœtal head has already passed it, we are sure that the conjugata vera is of sufficient width. When we can touch the promontory, we mark the point of the pubic arch on the left index finger with the nail of the right. On withdrawing the fingers the measurements can easily be obtained by the pelvimeter.

All these measurements are then reduced to the standard given by Dr. Carl Martin in the above-named tables.

The general condition of the bony pelvis is found on examining for the fœtal presentation.

Some object to our external measurements that they cannot give an accurate idea of the brim. This question can only be decided by experience, and our experience has proved favorable to our measurements, although we know well that the relation between the internal and the external measurements fluctuate within certain limits.

Another objection I have to mention against our pelvimetry is that it is not applicable in private practice. To this we partially assent; but the experience gained in our lying-in houses and poli-clinic, in which the women do not dare to refuse, enables us to judge by a superficial manual examination whether or no there is such an amount of deviation as to call for a more careful and exhaustive measuring, in which case no woman would refuse to submit to that which is obviously for her own benefit, and which causes her so little inconvenience.

Others object that our measurements are incomplete as long as we are unable to measure the fœtal head. This cannot be denied, and we endeavour to avoid this difficulty by the knowledge experience has given us as yet. We know that first children are smaller than subsequent ones, that the cranial bones of the fœtus become harder each day towards termination of pregnancy, the sutures become firmer, and the moulding of the head more difficult, &c. All these points are to be remembered in cases of pelvic deviation. It is astonishing too how well the fœtus supports compression of the head, even when this is so great as to cause marked depression of the bones. And we hope that the ingenuity

of some one will furnish us with the means of measuring the fœtal head in utero.

We also measure all fœtal heads directly after delivery. Allow me to tell you how we do this with the pelvimeter. We take first the frontal or anterior transverse diameter by putting the points of the instrument on the ends of the coronal suture. The points are then put on the parietal protuberances to measure the posterior diameter. The antero-posterior diameter we measure from the frontal sinuses to the tuber of the occiput. We then measure the distance between the chin and the posterior fontanelle which we call the long oblique diameter. The short oblique diameter is measured between the frontal sinuses and the insertion of the ligamentum nuchæ. The anterior level is a measurement taken from the mastoid process to the frontal sinuses, the posterior level from the mastoid process to the occipital protuberance. Measuring these levels we take the mastoid process in place of the anterior edge of the foramen magnum, which is the pivot of the head's movements forward and backward. The mastoid processes indeed well answering to this edge in fœtal heads.

These two levels are of the highest importance in the mechanism of parturition and especially in the genesis of face presentation. Lastly, we take the circumference of the head at the point of greatest measurement.

In illustration of the foregoing remarks permit me to submit to you some photographs of interesting pelves and a few fœtal heads. I have brought no casts of pelves as you invited us to do, being desirous of learning your wishes and ideas before having them made. The photographs will, I trust, enable you to form conclusions as to the pelves of which you would like to have casts or models made.

The photographs which present different views are stereoscopic, and convey a plastic idea of the pelves themselves. To all the photographs I have appended the various measurements, and to most of them an account of the circumstances of each case.

These accounts I have translated with the kind aid of the

excellent Secretary of your Pelvis Committee, Dr. Alfred Wiltshire.

I hope these remarks may be found worthy of your attention, and I beg to thank you for the courtesy and kindness with which you have listened to me.

The cordial thanks of the Society were unanimously given to Dr. Martin for his valuable donation of photographs.

FIBRO-CYSTIC DISEASE OF UTERUS AND BOTH OVARIES; EXTIRPATION OF THE WHOLE; RECOVERY.

By Thomas Bryant, F.R.C.S.,
SURGEON TO GUY'S HOSPITAL.

Miss M—, æt. 26, a young unmarried lady, residing in Surrey, consulted me in April, 1871, on the recommendation of Dr. Oldham, for an abdominal tumour. She had been under Dr. Oldham's observation for some time, and he had watched the development of what he believed to be an ovarian tumour until he thought it was fitted for operation. In his note to me Dr. Oldham added, "the uterus is too forward, but there is no pelvic swelling behind it; upon the whole it is a favorable case."

The young lady was in good health and had a large abdominal tumour; she said it had been growing for three years, its growth having been gradual, although for the last six months it had been more rapid. She was about as large as a woman at her full term of pregnancy. The catamenia had been regular. The tumour was moveable but always profuse, and appeared polycystic, fluctuation in parts existing.

On May 19th the operation was performed for its removal, Drs. Oldham, Phillips, and Waterworth assisting. A long

incision was made, and directly it was made the uterine nature of the growth was recognised by its vascular appearance. There were no adhesions, some little ascitic fluid existed. The tumour on examination was clearly uterine, both ovaries were about the size of walnuts from poly-cystic disease. The broad ligaments were then secured separately and the uterus at its neck ligatured in halves. Not feeling confident about the ligatures arresting bleeding, a good strong clamp was put in and the tumour excised. No bleeding took place. The wound was then brought together and a morphia suppository given.

The patient passed a quiet night, not having been troubled with any sickness; she was free from pain. The suppository was ordered twice a day. Milk diet allowed.

A daily report is unnecessary, everything went on so well. On the fourth day the sutures were removed. On the twenty-fourth and twenty-fifth day some little diarrhœa gave cause for anxiety, but this soon subsided; it was probably caused by some ice cream she had taken.

On June 2nd, or fourteenth day, the clamp sloughed off, the wound having nearly healed. In another week all the parts had united. At the end of the month she was up and about, and at the present time she is well in all respects.

The tumour on removal weighed eight pounds and a half. The fluid that ran from it on reaching a section coagulated as it cooled. Half of the growth is at the College of Surgeons, the other in our Museum at Guy's.

Report on Uterine Fibro-cystic Tumour.

The portions of tumour given to me were as follows:

1. A part with all the usual characters macro- and microscopic of uterine fibroid or myo-fibroma.

2. Another part which had irregular cystic spaces in the same kind of tissue; the cysts wearing the appearance of casual collections of liquid in the spaces of the tissue.

Under the microscope this showed the same structure as the other, the fibrous element, however, preponderating; there were also here many small collections of nucleated fibres, the nuclei small, this apparently representing the younger growth of the tumour. The formation of the cyst was well shown to be due to fatty disintegration of the fibrous tissue, with accompanying œdema of certain patches which thus took the form of gaps in the tumour filled with fluid. These characters correspond with those of "fibro-cystic tumours of the uterus."

3. The ovary showed the same states very beautifully, a part in the middle of the ovary showing early fibro-cystic change very obviously; the cysts here being quite different from those in the surface of the ovary, which were evidently Graafian follicles.

W. Moxon,
Guy's Hospital.

Report on Fibro-Myoma of Uterus.

The mass consists of half the uterus and its contained tumour. The outer surface is covered by a layer of peritoneum, and at its upper part is seen a portion of the broad ligament. Surrounding the tumour is a much hypertrophied uterine wall which averages an inch in thickness, and is in some places even more than this. The muscle itself is apparently normal save for the hypertrophy. Within this is a large mass which fills the entire cavity of the uterus. It can be separated at places from the muscular wall, but no distinct traces of mucous membrane or glands are anywhere visible.

The growth consists of isolated masses of solid growth, between which are large tracts of honeycomb, ragged-looking areolar tissue, in rather thick shreds. Histologically the solid growth consists of fibrous and organic muscular tissue, while the arcolar material between these is made up partly of connective and partly of white fibrous structure.

At first sight the general appearance of the tumour seemed

to indicate a true cystic disease, that is to say, a disease of which cyst with distinct walls and epithelial lining form a part; this, however, was not so, and the cystic appearance was merely due to an infiltration and separation of the fibres of connective between the large myomatous tumours.

JAMES F. GOODHART,
Royal College of Surgeons.

Remarks.—This case scarcely needs any comments. It was looked upon as ovarian from the first, no suspicion of its being anything else having ever rested in Dr. Oldham's mind, and the patient being so young and single prevented such a careful pelvic examination being made as would otherwise have been done. I accepted the diagnosis upon Dr. Oldham's authority, no symptoms being present to excite doubt. Had the diagnosis been made probably no better operation could have been performed.

The success of the case was most gratifying.

I may add that this is the fourth case in which I have removed the uterus for fibrous or fibro-cystic growths, but the first in which success followed. In two death followed within twenty-four hours from hæmorrhage; bleeding having taken place in one from a large pelvic vein which was split at the time of the operation; in the second from some unknown cause; in the third case no bleeding complicated the operation, and a tumour upwards of twenty pounds in weight was taken away, the patient dying thirty-four hours after the operation, somewhat suddenly, apparently from the shock of early peritonitis or clot in the right side of the heart.

Dr. BANTOCK complimented Mr. Bryant on the success of his operation, a result so rare in this important operation. And he laid stress on the importance of the use of the uterine sound in the diagnosis of tumours of the pelvic organs, stating that in nineteen out of twenty cases this incident alone would decide the question as to the uterine or ovarian origin of the disease.

The PRESIDENT remarked that the sound is not always reliable, as was shown in one of the cases mentioned by Mr. Bryant, which was recommended for operation by himself. In this case chloroform was given to explore the uterus. The sound

passed the usual length. As there was no reason to suspect uterine tumour, and as she was very distended, she was operated upon. When the tumour was found to be uterine it was removed with great skill, the cervix tied and the rest of uterus removed. It was then found that a pressure of part of the tumour had caused adhesion of the walls of cavity, above which menses had been retained in a cavity four or five inches beyond the adhesion.

Mr. Spencer Wells said that when there was a great preponderance of the solid over the fluid portions of a tumour, that tumour was more likely to be uterine than ovarian. He had also found the uterine cavity of normal length in some cases of large fibroids, and in other cases such distortion that a metal sound could not be passed, although an elastic bougie would sometimes follow a tortuous canal. He had seen the uterine cavity elongated to seven inches by adhesion to an ovarian cyst. In many cases complete diagnosis was impossible without explanatory puncture or incision. He had only removed the enlarged uterus and both ovaries once, but he had removed very large fibroid outgrowths from the uterus, with more or less of the part of the uterus with which they were connected, alone or with one attached ovary. One case was completely successful, the fundus uteri having been transfixed by large harelip pins which served to keep the part of the uterus included in the ligature behind the pins outside the abdominal wall. There was some bleeding when the pins and ligature separated, but the patient is now in perfect health, menstruating regularly. In another case the patient was almost well, when more than a month after operation pyæmic pneumonia proved fatal; the cause having been an abscess in the abdominal wall, the intra-peritoneal conditions being quite satisfactory. In only one case was death due to hæmorrhage, and there he had enucleated a large tumour after cutting into the substance of the uterus. He hardly understood why these operations were not as successful as ovariotomy, and hoped that when the details of the different proceedings are better learnt success would increase. In answer to a question from Mr. Bryant, Mr. Wells said he thought the best way of securing the broad ligaments was by ligature.

ON THE TREATMENT OF CERTAIN FORMS OF MENORRHAGIA AND UTERINE HÆMORRHAGE BY MEANS OF THE SPONGE TENT, WITH SPECIAL REFERENCE TO THEIR OCCURRENCE IN WOMEN RESIDING IN TROPICAL CLIMATES.

By Geo. Granville Bantock, M.D., &c.,
PHYSICIAN TO THE SAMARITAN FREE HOSPITAL.

So much prominence has been given of late, to the use of sea-tangle tent in uterine therapeutics, though chiefly as an aid in diagnosis,* tending to the neglect of its elder brother the sponge tent, that I am induced to recall attention to the use of the latter, and to point out its superiority in the treatment of certain diseases of the uterus. I do not, for one moment, wish to cast discredit on the former, but to endeavour to limit its use to appropriate cases by defining some at least, of those in which the sponge tent yields better results. For the purposes of dilatation simply I desire no better agent than the tangle tent, but as a remedial agent it is far inferior to the sponge. I express this opinion as the result of experience. But my object is not to enter on a discussion of the comparative merits of the two. I content myself with the limits imposed by the heading of this paper.

Before proceeding, however, to record the cases which illustrate the subject I may be permitted to ask the question—What is a sponge tent? This may appear to many to be a trivial question, but I can assure them, if such there be, that it is an important one, and that much depends upon its right solution. There are at the present time, in the market, specimens, which, though in outward form they are very elegant, have no claim to the name of sponge tent except from the fact that they are seen to be made up of a piece, or pieces

[1] See paper by Dr. J. Braxton Hicks on "Sea Tangle Tents," 'Practitioner,' vol. iii.

of sponge, and whose use tends only to bring discredit on the instrument. Not long ago I introduced one of these into the uterus of a patient and I took the precaution to retain it *in sitû* for several minutes, and to enjoin perfect quietude for an hour and a half. My injunctions as to rest were strictly obeyed, and water was freely used to ensure full dilatation. Nevertheless, twenty-four hours after, I had the mortification of finding that not only had the tent slipped into the vagina, but that it was scarcely larger than when first introduced. In view of such a circumstance I may be excused for shortly entering on the subject of their manufacture.

In his original memoir on the "Detection and Treatment of Intra-uterine Polypi" (published at p. 122 of his collected works by Drs. Priestley and Storer) the late Sir J. Y. Simpson recommended that the sponge should be steeped in a solution of gum previous to compression; but the editors were careful to append a note to the effect that experience had proved this to be unnecessary. This appears to have been overlooked by subsequent writers; for Dr. Black, in the recently issued volume of the same author adheres strictly to the original memoir. Dr. Marion Sims, admirable though his directions in other respects are, commits, what appears to me, a greater mistake in recommending that the sponge should be "thoroughly saturated with a *thick* mucilage of gum arabic." I have used tents apparently made in this way and have as often been disappointed with the results. The tent, when fully dilated, presents somewhat the appearance of a lump of jelly; the gum forms a covering to the sponge and fills up the interspaces or canals, and this effectually prevents that action which is one of the principal objects, as will be hereafter explained. Good sound sponge of medium texture requires no addition of gum in the manufacture of tents of all sizes. The fine and close Turkey sponge, as well as the "honeycomb" sponge, is not suitable for the purpose, the former being deficient in resiliency and the latter in power. The only disadvantage attending the use of sponge tents made in the way recommended, is the readiness with which they absorb moisture. This is best met by carefully

selecting a tent that will readily enter the cervical canal, and in some cases, such as flexions and versions, by using a suitable speculum, and fixing the uterus by means of Sims' hook, and, if necessary, straightening the organ. Whether a speculum be used or not it is necessary that the tent be covered with a thin coating of a mixture of wax and lard. I use the proportions of one of wax to three of lard. This coating should not cover more than half the sponge. Of late I have been in the habit of moistening the sponge, previous to compression with a watery solution of carbolic acid one in twenty, and I am satisfied that it prevents, in great measure, the very unpleasant smell which otherwise always attends the use of the sponge tent.

I have thought it quite unnecessary to describe the exact process of manufacture seeing that as it has been so graphically done both by Simpson and Sims, every one must be presumed to be acquainted with it.

I pass to the more immediate subject of this paper, viz., the treatment of certain forms of menorrhagia and uterine hæmorrhage by means of the sponge tent. The following cases illustrate the subject:

Case 1.—Mrs. C—, æt. 30, mother of six children, was married at the age of 18, a year after her arrival in India. Four months after the birth of her second child she began to suffer from menorrhagia accompanied by great disturbance of the digestive system. She bore four children more, and the menorrhagia increased *pari passu*, so that at last she was compelled to leave the country. Several of her labours were accompanied by post-partum hæmorrhage, especially the last. The periods recurred with tolerable regularity between the third and fourth week, but the quantity was so excessive that a fatal result was more than once apprehended. Ice and all the usual hæmostatic remedies were of no avail. She came home by the Cape of Good Hope in a sailing vessel, and such were the beneficial effects of the long sea voyage that the menorrhagia ceased. Not so the derangement of the digestive system. Soon after her return to this country, and after being

for some time under the treatment of Sir James Simpson, she again became pregnant and was delivered at full term. The menorrhagia returned, and she was subjected to a variety of treatment both in Edinburgh and London ; she had her cervix divided for supposed fibroid tumour, and was subjected to another operation at the same time. I had an opportunity of examining her almost immediately after the division of the cervix, and could find no trace of fibroid tumour, or even induration. The menorrhagia was in no degree restrained by this operation, but, on the contrary, owing to the increased facility given to the escape of the blood, it was rather worse. The uterus was not larger than should have been expected in the case of a multipara, after a rather recent confinement; its texture was devoid of that solidity which is characteristic of its normal state, it was soft and flabby, the os and canal of the cervix were patent so as almost to admit the tip of the index finger: a No. 13 catheter —gum elastic—readily entered the cavity and fluid injected through it returned in full stream alongside. She came under my care in February, 1857, at which time—some months after the date of my first examination—the condition of the uterus was substantially the same as above described, and the menorrhagia no better. Her general health corresponded. She was in a state of great anæmia, unable to walk a very moderate distance without great fatigue and prostration, and rarely left the recumbent position. During the menstrual periods she was confined to bed, and the free use of stimulants was required to ward off a distressing feeling of faintness. I tried all the hæmostatic remedies such as iron, ergot, gallic acid, Indian hemp &c., internally and locally, the cold douche by continuous stream (Sansom's douche), injection of Sol. Fer. Perchl., &c. During this course of treatment she was seen by three of the most eminent obstetric physicians in London, at whose suggestion some of the above remedies, and in different forms, were administered. Still the menorrhagia went on. Residence at the sea-side produced very slight improvement in her general condition. Looking back at her history I suggested a sea

voyage, but it was found impracticable. At last the idea occurred to me of trying the effect of a sponge tent. On her return to town from the sea-side, and on the 1st of October, 1867, I passed a large sized sponge tent, recently made as I have already directed, and rather more than two inches long, through the internal os, and left it for twenty-four hours. The next period showed a decided improvement. On November 28th I passed another: the result was still more satisfactory, all the former remedies were discontinued, the menstrual flow became reduced to a degree often exceeded by what is in some persons normal, and altogether she was so improved that she was able to return to India in the following October, having spent the preceding summer and autumn months in various parts of the country, without any treatment whatever. Previous to her departure she passed a fortnight in really hard work, purchasing, packing, &c. A few months after her return to India she again became pregnant, and was delivered at full term on May 18th 1870. The menorrhagia returned, but not with its former severity. She is now in this country, having come back in July of this year, 1871, and although her menstrual periods are abundant they are not sufficiently so to require any treatment.

Case 2.—Mrs. W— came under my care as an out-patient at the Samaritan Free Hospital, suffering from excessive menstruation as well as intercurrent discharges of blood. She was the mother of several children, and until the commencement of her present symptoms had enjoyed good health. She had suffered from a slight increase of menstruation since the birth of her last child between two and three years ago, but it was within the preceding few months that it had acquired its greatest severity, and that she had become the subject of intercurrent discharges. There was considerable leucorrhœa, chiefly vaginal. She had gradually—more rapidly of late—become weak and anæmic, and could hardly bear the walk from Lisson Grove to the hospital.

On examination the uterus was found to be slightly increased in volume: the cervix thickened but not indurated, the os

patulous, its mucous membrane thickened, soft, spongy and granular. The passing of the sound caused rather free bleeding. I administered iron alone and in combination with ergot, gallic acid, &c., but without any effect on the bleeding. Local remedies such as cold douche and astringent injections were of no use. After some hesitation I determined to try a sponge tent, and accordingly I introduced one of medium size and the patient returned home.[1] Next day, with some degree of anxiety and apprehension of the result—as it was the first time I had attempted the treatment in out-patient practice—I visited the patient at her own home and removed the tent. It had acted extremely well—whether this was due to its containing no gum, or whether the copious sero-sanguinolent discharge set up had washed it all out I am not prepared to say—and held its place firmly, its meshes interlocking with the lining membrane of the cervical canal, and it was only by first passing the finger around the tent and successively pressing it away from the opposing surface that I was able to withdraw it. There was a very abundant watery discharge, excessively offensive: the vagina was immediately washed out with a solution of chlorate of potash (5 grs. to oz.); she was ordered to keep her bed for a couple of days and to continue the Tr. Fer. Perchl. which she was then taking. At the end of a week she presented herself at the hospital.

From that time the intercurrent hæmorrhages ceased, her menstrual periods assumed normal proportions, and in a few weeks she was discharged. I met her accidentally some months after and she stated that she was quite well. More recently she has been again under my care, but for dyspeptic symptoms.

Case 3.—Mrs. T—, æt. 24, a native of Calcutta of very dark complexion, from a considerable infusion of Indian blood, began to menstruate at the age of fourteen; the periods recurred very regularly every month, and lasted from six to eight days, the total amount of discharge being above

[1] I find that this tent was obtained from Duncan and Flockhart, Edin.

the average, but unaccompained by clots. She married at the age of seventeen, and two months afterwards had a miscarriage. Her next period assumed the character of menorrhagia with clots. Repeated miscarriages at varying intervals took place, amounting to a total of seven, the last occurring in September, 1868, at the fourth month, after a voyage to the Mauritius for the benefit of her health. During her pregnancies she always suffered from slight hæmorrhages at irregular periods. From the date of her last miscarriage the menorrhagia was so severe as to compel her to keep her bed for the whole period of from five to seven days. On the first day she usually complained of rather severe pain in the "waist;" on the third and fourth days large clots passed; and at the end of the period she was in a state of great prostration, from which she had scarcely recovered before the next period was upon her. In addition to this she suffered from frequent attacks of pain of a sickening character in the lumbar region, during the intervals of menstruation, and these were usually accompanied by a more or less decidedly sanguineous discharge. She sought advice in various quarters and was subjected to a variety of treatment, local as well as general, but, deriving no benefit, and receiving no definite information as to the nature of her disease, it was determined that she should seek advice in London. The opinions pronounced on her case were various, one of them being that she was the subject of a tumour; another was to the effect that she required an operation. The removal of the supposed tumour, or whatever condition required operation, was the cause of the long journey. She menstruated for the last time in India from the 26th to 31st March, 1871 (inclusive), passing many clots, and she was taken on board ship on 3rd April, per Suez Canal,—being then in a very weak state. There was a scanty discharge on the 20th and 21st April; and again on 15th May there was a slight "shew." On 25th May she landed in England. This patient came under my care on 10th June. She had not been unwell again but complained very much of the frequency and severity of the attacks of the pain above mentioned, but without discharge of any

kind. Her general health was very good, having undergone great improvement on the voyage. She had experienced a similar result from her voyage to the Mauritius, but the improvement was only temporary. On that occasion, it should be noted, her pregnancy extended to the fourth month.

Diagnosis.—On external abdominal examination not even the suspicion of a tumour was aroused, but vaginal examination revealed the following condition :—The uterus was of normal size, both as measured by the sound, and by the combined external and internal manipulation; there was a slight anteflexion; the os was patent; the whole cervix soft and flabby; the mucous membrane of the anterior lip especially, felt as if loosened in its submucous connections. Before placing her under treatment, and after having explained the nature of her disease and the treatment I proposed, I recommended her to obtain the opinion of one skilled in the treatment of uterine disorders. Accordingly on the following day she accompained me to Mr. Spencer Wells. The result was a perfect agreement as to the absence of any tumour and the presence of the condition described. Nor was there any difference on the question of operation, while we were agreed as to the treatment to be pursued.

Treatment.—On 12th June, a small sponge tent was introduced and left for twenty-four hours; another was introduced on the 19th and removed on the 20th, and on the latter day I prescribed 10-minim doses three times daily, of the Tr. Fer. Mur. and Extr. Ergot Liquid. The menses appeared on the 29th and lasted three days, moderate in amount and not preceded by pain. There were no clots, nor was she compelled to keep her bed. She was allowed to pass over a month without another tent, and on 23rd July the menses again appeared. The quantity was greater, and there were several small clots. On this occasion I gave her a few doses of gallic acid. On the 29th she was complaining of the old pain and was rather disheartened. For this I prescribed gr. $\frac{1}{2}$ extract of Indian hemp to be taken every four hours while the pain lasted, and to be had recourse to on each recurrence. On 2nd August I passed a small tent, and on the

following day another of larger size. Neither of these acted well as they were saturated with thick gum. On the 9th I introduced another of medium size, of same make, and next day had the mortification of finding it in the vagina little changed. However, I replaced it by another, and this by a third on the 11th, and the result was satisfactory. (These latter tents were made by myself for the occasion, and the sponge was merely moistened with the solution of carbolic acid. They were quite devoid of unpleasant smell on extraction.) To make sure work (as the patient limited me to time), I introduced another on the 16th. This acted perfectly, opening the cervix well. After the use of the sponge tents the vagina was washed out daily with a solution of ten grains of tannin in two ounces of water. The menses appeared on the 23rd and lasted three whole days; the discharge was moderate, and the patient was not confined to bed at all. From this time she ceased to complain of pain. On September 21st she again became unwell, and the discharge ceased on the fourth day. During the whole of this menstrual period she went about sight-seeing daily without inconvenience of any kind.

Result.—On the 10th October she sailed for Calcutta in a state of perfect health, rejoicing as much at the cessation of the attacks of pain as of the menorrhagia. During the last month all treatment, local and general, was suspended.

Remarks.—These three cases are good examples of that form of uterine hemorrhage and menorrhagia to which I have desired to call attention, which is not described definitely in our text-books, and in the treatment of which the sponge tent is so valuable. There is no tumour, no fibroid thickening or induration, nor is there a polypus. The condition is one of relaxation of the tissues of the uterine body to some extent, but especially of the mucous membrane lining the cervical canal, and probably that of the uterine cavity—if I may be allowed to adhere to the established nomenclature for the sake of convenience, without prejudice to the question whether it be a distinct membrane or a layer of soft tissue. This state of relaxation permits congestion or stasis of blood

to take place in the vessels of the submucous tissue (or layer of soft tissue), which, deprived of their necessary support, readily pour out their contents either under the influence of the menstrual molimen, or any influence acting locally or generally, and leading to congestion of the pelvic organs in their entirety, as occurs in the somewhat analogous case of hæmorrhoids. In all the cases which have come under my notice the patients have either resided in India, and have been more or less liable to miscarriages or post-partum hæmorrhages, or they have been resident in this country and have dated their illness from a miscarriage or delivery at term. These are not cases of subinvolution. I refer more particularly to the cases of residents in tropical climates (the term is not once mentioned by Dr. Tilt in his special chapter, to which I shall have occasion to refer more at length); for in Case 1 the uterus is described as being in no degree larger than is usual in women who have borne half a dozen children, while in Case 3 the size of the organ could be so easily measured by the combined external and internal manipulation, and the estimate thus formed was so exactly confirmed by the use of the sound that the idea of subinvolution could not be entertained. To the naked eye, when seen through the speculum, the everted mucous membrane of the cervical canal is seen to a much greater extent than usual, and its redness tends to lividity. Pressed with the sound or any hard substance, the tissues yield to a greater degree than in their normal state, and the passing of the sound often draws blood. As a rule there is decided leucorrhœa—in Cases 1 and 3 it was not abundant—but I have never seen the os and cervical canal blocked up with glairy mucus, so characteristic of the so-called "catarrh" and inflammatory conditions of the uterus. Nor is there any increase of temperature. When examined by the finger the mucous membrane can be felt to slip over the subjacent tissues as if too loose. In Case 3 this was so well marked as to lead to considerable increase in the size of the anterior lip; and the disappearance of this condition was coincident with the cessation of the menorrhagia.

The pathology of these cases calls for remark, and in order to state my views it is necessary that I should advert to those entertained by writers on the subject. Dr. Graily Hewitt, under the head of "Menorrhagia," referring to those cases which occur in women who have resided in tropical climates, such as India, and which he describes as very obstinate, says, "the uterus and pelvic organs generally are found, in such cases, in a state of chronic congestion; there is profuse menstruation together with leucorrhœa." His pathology is further indicated by his referring the reader to the treatment prescribed for chronic inflammation of the uterus as suitable to the cases under consideration. Dr. Tilt in his 'Handbook of Uterine Therapeutics' has dealt specially with the subject of menstrual derangement in a chapter on the "Influence of India on the Health of British Women," which he published in a separate form as late as October, 1868. One idea pervades the chapter from beginning to end, viz., that of inflammation. He says (at p. 18 of the latter) "So great is the tendency to uterine hæmorrhage in India that it has become a frequent practice for our countrywomen to return to Europe for their confinements, so as to avoid the profuse flooding by which it is so often accompanied in India." And he adds, very illogically it appears to me, "the fact is thus brought out that as tropical climates produce uterine inflammation, because habitually intense heat disturbs menstruation in those who are not born under tropical influences; so our countrywomen, when transplanted into India, become more liable to inflammation of the womb, as a result of pregnancy, abortion, and parturition, than if they had remained in England." So predominant is this theory in his mind that it is called in to account for a variety of diseases, for he goes on to say, "I pointed out that diarrhœa is sometimes a symptom of pregnancy; that severe uterine inflammation generally gives rise to obstinate constipation, or to diarrhœa and other functional disorders of the large intestine and rectum; and this explains why, in India, for instance, diarrhœa is a more frequent symptom of pregnancy than in temperate countries,

and why dysentery often complicates pregnancy, inducing abortion," &c.

Let us see then what are the symptoms of inflammation of the uterus to which so much is attributed. Dr. Graily Hewitt, limiting his description to chronic inflammation of the uterus, says, "the changes and modifications in its .... texture, in its vascular condition, and in its relations to the nervous centres, produce discomfort of various kinds," "they interfere with the natural performance of the functions of the uterus, *prevent the procreation* of children," &c. The symptoms, more directly stated, are pain low down in the pelvis, pain in the back, both increased by walking, or chronic irritability of the bladder, undue discharge from the vagina; "pains radiating to the inner and upper part of the thighs, &c., are not rarely produced by it." "Sterility is a frequent effect, the menstrual functions are almost always disturbed, the periods being painful and the loss often excessive, not invariably. "The physical changes most frequently resulting from this chronic inflammation are congestion, undue sensibility and hypertrophy." Further, the changes produced are described as belonging to two stages; the first is that of infiltration, in which the uterus is "simply engorged," "the consistence of the tissues . . . is unchanged, but the organ is large, and the walls thicker than they should be." The second is that of induration in which there is "undue hardness and firmness of the uterine tissues, the uterus being also, as a rule, larger than customary." He does not describe acute inflammation in detail. Scanzoni, on the other hand, gives a minute description of this state, of which pains of various kinds, tenderness of the organ, local elevation of temperature, and *cessation* of the menses are prominent symptoms. In *very rare* cases the menstrual discharge is very abundant, constituting a real menorrhagia. Hence the name hæmorrhagic metritis.

In the chronic inflammation there is "a disagreeable sensation of fulness and weight in the pelvis," "difficulty in micturition," "pain in defæcation," and "a mucous discharge from the genital organs." "Sometimes, not very

abundant at others considerable," pains in the hypogastric, sacral, and inguinal regions, which, though vague, are very severe, continuing almost without interruption, but increasing from time to time; augmented by a vertical position, and by walking or other shaking of the body. "Any abdominal pressure in sneezing, coughing, or straining in defæcation, &c., is accompanied by an extraordinary and painful sensation, as if a heavy body would fall out of the pelvis." "With some rare exceptions the disease is always accompanied by obstinate constipation." "The menstrual flow is subject to numerous irregularities being ordinarily *not very abundant*, or of long duration, and is often accompanied by painful symptoms (dysmenorrhœal)." Sometimes it ceases for *months* and *even years*, while, on the contrary, in *rare* exceptions, it may become very copious."

I need not go further in order to contrast these conditions with that described in the cases under consideration, or with the disease specially described by Dr. Tilt, and of which menorrhagia is the most prominent symptom. He nowhere speaks of the various pains, tenderness, constipation, sterility, &c., so insisted on by Drs. Graily Hewitt and Scanzoni, and I think I have a right to infer that the disease he treats of is essentially of the same nature as in Cases 1 and 3, and having nothing of the nature of inflammation.

Notwithstanding the above quotations from Dr. Graily Hewitt I must join his name to Dr. Tilt's with regard to the disease under discussion, and I venture, with all diffidence, to dissent from the views of these writers, and to reject a pathology so exclusive, I might say so *in*clusive. I fail to find evidence conclusive of inflammation of the uterus in the pregnant state, such as rupture from inflammatory softening so called, adhesion of the placenta, &c., in numbers proportionately exceeding the frequency of their occurrence in this country, or in the puerperal state, as manifested by the symptoms above quoted. I entertain the hope that attention having been pointedly called to the question, the views hitherto held having been challenged, and in sight of the successful results of what I may call a new method of treat-

ment, we may ere long arrive at a more correct pathology and attain a more exact diagnosis, and that as a necessary result these cases may prove less "obstinate" than they have hitherto done. These views are supported by the frequency with which women who are the subjects of menorrhagia bear children in India, a fact somewhat inconsistent with the existence of acute or chronic inflammation. Nor is it out of place to remark that acute inflammation in the puerperal state rather tends to the diminution of hæmorrhage than its increase. I might refer, as bearing on this question, to the very frequent occurrence of fibroid tumours of the uterus in women of hot countries, not as evidence of inflammation—for I am not aware that any writer has attributed their production to this cause—but as pointing to an increased growth of tissue of low vitality, of which inflammation is usually regarded as destructive; to the rarity of pelvic cellulitis (which is not even named by Dr. Tilt), and of adhesions of the uterus, &c.

I have already cited the excessive frequency of post-partum hæmorrhage in India, which Dr. Tilt attributes to inflammation, but I fail to see why we should look for a different explanation from that which is offered for its occurrence in this country. Relaxation of muscular tissue is the grand *fons et origo mali*. The whole system is debilitated, the muscular tissue, voluntary and involuntary, loses its tone, the tissues generally become relaxed, passive venous congestions abound, and the seeds of abundant disease are sown. In the female this may be ascribed partly to the direct influence of climate, excessive heat, and partly to the idle habits engendered. All authorities agree—and it is well shown by Dr. Tilt—that nothing conduces so much to good health in India as abundant exercise.

I would not for one moment have it supposed that I call in question the frequent occurrence of inflammation in tropical countries—true inflammation of the uterus and its appendages. I wish it to be distinctly understood that I only oppose that view which attributes the excessive frequency of menorrhagia and uterine hæmorrhage to inflammatory action.

I hardly need mention that neither Dr. Graily Hewitt nor Dr. Tilt makes any allusion to the sponge tent in the treatment of these cases.

The mode of action of the sponge tent is probably mechanical as well as vital. It acts mechanically by compressing the mucous membrane and its vascular system, emptying the over-distended blood-vessels, and removing the redundant epithelium; vitally, in restoring tone to the flabby blood-vessels by relief of over-distension, and in exciting growth of healthy tissue. Simple compression, as effected by the tangle tent, is not sufficient for these purposes; the tent attains its maximum dilatation in a few hours, and on its withdrawal the granulations spring up again by mere force of elasticity. It is well known that the tangle tent produces less irritation than the sponge, but this is its disadvantage. In the case of the sponge tent the pressure is exerted more slowly, more gently, more continuously, and more efficiently; the interstices of the sponge become interlocked with the inequalities of surface presented to it; pressure is exerted on the bases of and between the granulations, as well as on their summits, and thus their complete destruction is brought about. The forcible peeling off of the redundant epithelium paves the way for a new growth of more healthy tissue. The amount of discharge set up—usually watery—materially assists in relieving the congestion and removing exuberant growth of low vitality.

Apart from the superior effects of the sponge the amount of pain caused by the two forms of tent is worthy of note. The sponge causes little or no pain, and never requires the accompanying administration of a sedative; the tangle, on the other hand, causes severe pain, lasting about five or six hours, or even more, according to the amount of resistance offered to it, and in all cases demanding the use of an anodyne.

The powers of the sponge tent as a remedial agent have been well illustrated by Dr. Marion Sims in several cases, although it may be said of them that they were mere accidents —that is to say, they were not used with the intention of producing the results which they brought about. His most

striking case is that which he calls fungoid granulations of the os and cervix uteri, characterised by a profuse irritating leucorrhœa and menorrhagia. This case made a very strong impression on my mind, and although there was no resemblance between the two, I believe it suggested to me the use of the sponge tent in Case 2. He sums up its powers in these words:—"It dilates the neck of the womb; it softens it by pressure, and by a sort of serous depletion; it reduces the size, not only of the neck, but of the body of a moderately hypertrophied uterus; it destroys, not only fungoid granulations, but even large mucous polypi; and in one instance I saw a sponge tent destroy wholly a fibrous polypus as large as a pigeon's egg." He adds, "This was accidental." In spite of this strong recommendation the sponge tent has suffered comparative neglect, and it has not yet attained that position which its powers demand. The late Sir J. Y. Simpson, in the memoir already referred to, also speaks of cases of small vesicular polypi cured by the sponge tent alone, and even he does not appear to have recognised its capabilities, for I fail to find any special recommendation of it as a therapeutical agent.

Before concluding I may be permitted to draw attention to that remarkable influence which a sea voyage exerts on menorrhagia as it occurs in our countrywomen who have resided in India, to which reference has already been made. So much was I impressed with this that in the first case here recorded I had serious thoughts, before I had tried the sponge tent, of urging this as a means of cure. The subject is deserving of consideration, and I would suggest it to our brethren in India as worthy of experiment in a legitimate field.

Hitherto the sponge tent has been employed too exclusively as a means of diagnosis. To rescue it from this inferior position and to place it on a higher footing as a means of cure is the principal object of this paper. I trust I have in some measure established its usefulness as such.

Since writing the foregoing my attention has been drawn

to some papers published by Dr. Savage in the 'Lancet' for 1857, "On the Treatment of Menorrhagia by the Injection of Iodine after Dilatation by Sponge Tents." Dr. Savage's treatment is founded on the theory that there is an antagonism between the body and cervix of the uterus, and that this antagonism must be overcome by dilatation of the cervix, in order to render injection safe. It would therefore appear that he relied on the injection as the remedial agent, ignoring or rather overlooking the influence exerted by the sponge tent.

Dr. TILT expressed himself flattered that his account of the influence of tropical climates on uterine affections should have so deeply interested the author, and promised to give due attention to the author's criticisms when he had had a better opportunity of understanding them.

Mr. SCOTT was unwilling that the discussion should pass without a word of warning on the use of sponge tents. He would not now enter into the question of their utility in the cases under consideration, but the possible occurrence of metro-peritonitis or cellulitis under their use should never be lost sight of.

Dr. AVELING said that Dr. Bantock was in error in thinking that the pathological condition he had described was unknown. Hyperæmia of the uterus was an abnormal state well understood and frequently described by writers. It had been described by him at some length in a paper upon "The Value of Arsenic in Menorrhagia and Leucorrhœa," read at the meeting of the British Medical Association at Plymouth, last autumn, and published in the Journal, January 6th, 1872, p. 10. He had found arsenic to be of the greatest service in the treatment of this hyperæmic condition of the uterus, and would recommend its trial before having recourse to tents, the use of which he and others had known to be followed by a fatal result.

APRIL 3RD, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—44 Fellows and 9 visitors.

The following gentlemen were admitted Fellows of the Society:—Mr. George Bland, Mr. Alex. Fergusson, Mr. W. Hardy, Mr. A. Kisch, Dr. T. C. McConkey, Dr. Mondelet, Mr. G. Parr, Mr. G. Rigden, Mr. Robson Roose, Dr. Thorburn, and Dr. Vanderstraaten.

The following gentlemen were elected Fellows:—John Routledge Bosworth, M.R.C.S., Sutton; C. E. Buckingham, M.D., Boston, U.S.; C. P. D. Chittenden, L.R.C.P. Ed., Lee, Kent; Thomas Savage, M.D., Birmingham; and A. Wellesley Tomkins, M.D., Leamington.

Dr. AVELING exhibited his apparatus for immediate transfusion, which he has now modified by adding a tap at each end of the tube close to the nozzles. He had been called in a few days previously to transfuse blood into a lady dying of hæmorrhage after her confinement, and, he was happy to add, with a successful result. The present alteration was due to the experience he had then gained. He was also now able to answer an objection made to his apparatus when he first showed it to the Society in 1864, viz. that the person supplying the blood would faint from excitement or nervous-

ness. In this case the coachman, whose blood was transfused, was cheerful and interested during the progress of the operation, and made one or two useful suggestions. His arm afterwards gave him no trouble; in fact, he wished to drive the next day. Dr. Aveling believed that the methods of preventing coagulation, adopted when the mediate mode of transfusion was used, were the cause of needless deterioration of the blood and of unnecessary delay.

Dr. Barnes thought the Society would receive Dr. Aveling's communication with great satisfaction. It proved that his instrument, portable and convenient, was also efficient. The great obstacle to the diffusion of transfusion created by bulky apparatus, funnels, and defibrination, was obviated. He would suggest that instead of filling the syringe and tubes with warm water, it would be better to use a solution of phosphate of soda. This would tend to keep the blood fluid, and the saline fluid itself would be beneficial to the patient. In reference to Dr. Playfair's observation on defibrination, he would observe that, however carefully the filtration might be performed, it was still to be feared that in the filtrate some fibrin might coagulate, and act as minute emboli.

Dr. Playfair said that he had lately had the opportunity of performing transfusion in a case of post-partum hæmorrhage, in which he had used defibrinated blood. So far from there being any difficulty in defibrinating the blood, as Dr. Barnes suggested, that part of the operation was simple in the extreme, and answered admirably. If the blood was strained through a piece of fine muslin into a bowl floating in warm water, any possibility of pieces of floating fibrine being injected with it was effectually prevented. It seemed to him that this was not so certainly provided against in Dr. Aveling's instrument. At any rate, to prevent it the greatest despatch would be necessary. Whereas the great advantage of using defibrinated blood was that every step of the operation might be performed with the utmost leisure, and the necessity for any hurry or fuss was thus obviated. Moreover, it was now a pretty generally admitted physiological fact that the fibrinous element of the blood is useless in transfusion, and that it is, for all practical purposes, better without it. He, therefore, was of opinion that defibrination was a most important step in advance, and better than any other means of retaining the blood fluid; of course he was quite prepared to admit that mediate transfusion might prove the simplest means after all. In his own case a gravitation instrument had failed to act satisfactorily, probably because there was not sufficient force to

overcome the resistance of the venous walls on the nozzle of the instrument. Therefore he thought some form of syringe more likely to prove generally useful. It should be more generally known than it is that transfusion with defibrinated blood, so far from being a difficult operation, is in reality a very simple one.

Dr. CLEVELAND also wished to express a hope that the Society might be enabled to give directions for facilitating the operation of transfusion, and mentioned a case in which a lady, after confinement, was threatened with death from hæmorrhage, when he requested the assistance of a distinguished Fellow of the Society who had invented a suitable apparatus. A healthy young man was procured, and in waiting upwards of two hours; but owing, as Dr. C— believed, to the uncertainty of the operation, combined with the lingering hope that the patient might rally under the means employed, an opportunity was lost, and she succumbed. He could not help thinking that with a safe means of transfusing the result might have been different.

It was proposed by Dr. Routh, and seconded by Dr. Heywood Smith, "that the Council be recommended to form a Committee to investigate the subject of transfusion."

Dr. HEYWOOD SMITH showed a modification of his "angular scissors," which had been made since the last meeting. In these the small scissors had curved blades, and when bent forwards would be useful for the removal of polypi, and bent backwards for cutting the sutures after the operation for vesico-vaginal fistula. Dr. H. Smith thought this shape would prove of use in many operations, such as paring the edges in difficult vesico-vaginal fistulæ, cleft palate, &c.

INVERSION OF THE UTERUS AFTER CHILDBIRTH IN A PRIMIPARA. AMPUTATION BY ÉCRASEUR AT EXPIRATION OF TEN MONTHS ON ACCOUNT OF HÆMORRHAGE WITH GREAT EXHAUSTION.

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The patient from whom this uterus was removed, A. B—, is a young married woman aged twenty-two, of medium stature and good conformation, who was admitted under my care into the Middlesex Hospital February 20th, 1872.

On admission.—I found her anæmic, emaciated, and in a state of great prostration from uterine hæmorrhage, which was still continuing, with occasional vomiting. P. 100, T. 98°.

On vaginal examination I discovered a polypiform body occupying the vagina, suspended from within the lower part of the cervix of the uterus by a neck of the thickness of my index-finger. Measures for the abatement of the hæmorrhage were taken; the rectum, containing a fæcal accumulation, was cleared out by a soap-and-water enema. After this I made a more minute investigation, to decide whether the body which I felt was a polypus, which it had been suspected to be, or an inverted uterus. The uterine sound passed through the orifice of the uterus upwards to a distance of not more than one and a half inch. I next introduced the finger into the emptied rectum high up, and on directing its point forwards in search of the fundus of the uterus I could not feel it. The protruded body was very sensitive when compressed, and softer than a fibroid polypus usually is, and less smooth on its surface.

Previous history.—Her health previous to marriage, two years ago, had been good. Menstruation had commenced at

fourteen. She was delivered of her first and only child in April, 1871. Her labour was tedious, and at length delivery was effected by the forceps of a living child, which still thrives. The placenta, being adherent, required artificial removal; much hæmorrhage ensued, and considerable pain in the lumbar and pelvic regions of a dragging and bearing-down character.

The diagnosis.—This history and the above local examination of the case led to the inference that it was one, not of polypus, as had been supposed, but one of inversion of the uterus, occurring at or soon after the delivery of the placenta.

Treatment.—Reflecting on the patient's condition, one of extreme prostration from hæmorrhage, which had recurred at short intervals for the last ten months, I was convinced that her constitutional powers would not tolerate the treatment by persistent elastic pressure with a view to reduction. Moreover, the neck of the inverted portion of the uterus was too narrow to admit of the return through it of the fundus and body of the organ, at least not without long-continued and exhausting mechanical interference. The uterus had, moreover, undergone considerable involution, which set another barrier in the way of reversion. I therefore decided upon the only course left me under the circumstances—to remove the uterus, the displacement of which was the cause of the hæmorrhage immediately threatening the life of the patient.

The operation was performed on February 23rd. Of the different methods of extirpating the organ, that of *ligature only* I feared would cause great suffering, as it has done in many cases, and in my patient's condition would probably induce peritonitis and septicæmia; *ligature followed by excision* might be expected to produce like results; *excision only* would most probably be followed by dangerous hæmorrhage; *extirpation by the écraseur only*, being very rarely followed by hæmorrhage in the case of polypi even with thick necks, especially if the division is slowly accomplished, was accordingly the method which I selected as the safest. I employed the single wire for the purpose, of the same kind which I have often used for the removal of polypi. I applied it without

first dragging upon the neck of the uterus, thinking that if I avoided previous traction on the uterus, often recommended before extirpation, I should probably prevent, at least not be favouring, the sudden springing up into the peritoneal cavity of the severed cervical portion of the displaced uterus. Having applied the wire around the neck of the protruded body, and given its first degree of tightening without chloroform, the patient complained of agonising pain ; I therefore loosened the wire for a few moments while she was placed sufficiently under chloroform, and then I completed the amputation slowly. No hæmorrhage followed, nor did it again recur.

On recovering from anæsthesia my patient complained of severe pain in the hypogastrium; on this account my obstetric assistant, Mr. Lewis, administered, by my desire, a subcutaneous injection in the forearm of one third of a grain of morphia; this was repeated during the first twelve days, every two, three, four, six and eight hours, day and night, at varying intervals, as was necessary, for I found that any suspension of its use was followed by severe uterine and ovarian pains and restlessness. After this, for a few nights, hydrate of chloral in twenty-grain doses was substituted at bed-time and produced relief from pain and quiet sleep, Linseed poultices, sometimes containing laudanum, were kept steadily applied to the hypogastrium. The pulse was very small immediately after the operation, which was performed at 1.30 p. m., and the temperature at the same time fell to 97°. At 9 p.m. pulse 102, temp. 98·8°. The pulse mounted on the third night after the operation to 130, but the temperature reached its maximum, 102°, on the ninth day. After this both pulse and temp. fell gradually, the former to 72, the latter to 98°, on March 10th.

There were transient chills before the temperature and pulse rose, but no evidence of peritonitis appeared; at least moderate pressure on the belly was tolerably well borne, and the abdomen did not become tense. The catheter was required for the first three days; the bowels were moved by a simple enema on the seventh day. The patient was watched day and night during the early days after the operation, re-

ceiving frequent small supplies of liquid nourishment; for a time, and while sickness occurred, this was administered per rectum; brandy in small quantities was also allowed to the extent which feebleness indicated as necessary. On the eighteenth day she was permitted to leave her bed for a short time, and did so without any bad results; a gentle aperient of compound rhubarb pill regulated the bowels sufficiently, and a chalybeate tonic given during the last fortnight of her stay in the hospital, added to her generous diet, advanced her strength. She was discharged convalescent on the thirty-second day, having a few days before had a slight sanguineous discharge per vaginam, apparently menstrual. She continues (July) in perfect health.

The case here detailed and illustrated is one of partial inversion of the womb, the portion removed consisting of fundus and about the upper two thirds of the body of the uterus; it did not protrude through the vulva, as in complete inversion, and its serous cavity does not contain the ovaries; that I ascertained immediately after its removal. The uterus has been cut across from above downwards for the purpose of displaying the serous cavity containing part of the Fallopian tubes and ligaments, and to show the thickness of the uterine walls. It is probable that in this case adhesion had taken place between the opposite serous surfaces of the inverted uterus at some point between the line of inflexion and the line of amputation, for on passing the point of my finger

into the opening left by the écraseur its progress was soon stopped by what appeared to be a firm closure of the tube, cutting off, as I believe, all communication with the general peritoneal sac. If that was the case, it constituted an additional safeguard against the occurrence of peritonitis.

The drawing represents the actual size of the uterus as reduced by involution.

ON THE ESSENTIAL CAUSE OF DYSMENORRHŒA, AS ILLUSTRATED BY CASES OF PARTIAL AND COMPLETE RETENTION.

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I propose in this paper to search for the essential condition of dysmenorrhœa by the study of the various circumstances under which this symptom may arise. The analysis of these various circumstances may enable us to discover one condition which all or many have in common; that one condition will be the essential cause of dysmenorrhœa. In making this provisional statement I am far from wishing it to be implied that there is only one essential cause. There are cases which it is still difficult to refer to one cause. And it is one formidable obstacle to the progress of medical knowledge, from which our department is not more free than others, that one idea will often get such absolute possession of the mind as to exclude every other idea, forgetting that two or more truths cannot be antagonistic. I am anxious to guard myself against falling into this error, and therefore press the conclusion I have arrived at no further than the clinical basis it is drawn from will justify. We apply to the study of dysmenorrhœa the usual methods of clinical inquiry, namely, first, the consideration of the subjective phenomena; secondly, that of the objective phenomena, especially the investigation of the condition of the organs whose function

is disturbed; and lastly, the observation of the results of treatment. It may be admitted that the means of treatment employed are sometimes empirical, that is, they are not directed by a clear comprehension of the cause of the distress. But if we find that these means are frequently followed by success, this treatment, empirical though it be at first, will lead us to a clearer knowledge of the evil which it overcame, and thus in the end it becomes rational.

Cases of dysmenorrhœa may be roughly classified under the following heads:—1, neuralgic or sympathetic; 2, congestive or inflammatory; 3, due to obstruction of the Fallopian tubes; 4, due to mechanical anomalies of the uterus; 5, due to ovarian disease.

The simple study of the subjective phenomena will not enable us to distinguish cases of one kind from those of another kind. Indeed, so long as this very imperfect method was conclusively pursued all cases of dysmenorrhœa were confounded together, or the distinctions made were arbitrary and fanciful, and treatment was at best empirical and generally unsuccessful. Not many years ago dysmenorrhœa was almost universally looked upon and treated as a nervous affection of the uterus itself, or as sympathetic with disorder of distant organs, or an expression of constitutional debility; and vague ideas of this kind still largely prevail amongst physicians who have not directed particular attention to the pathology of the ovaries and uterus. But in proportion as precise methods of investigation have been applied to the study it has been discovered that in most cases the nervous phenomena are associated with distinct morbid conditions of the uterus, or upon conditions which oppose a mechanical obstacle to the proper performance of the uterine function. If we still, therefore, retain the term "*neuralgic dysmenorrhœa,*" we must do so on the understanding that, although describing a really existing disorder, it is a convenient *asylum ignorantiæ* under which we may provisionally class a number of cases the true pathology of which eludes our research. Extending observation will certainly contract this asylum more and more, if, indeed, we may not hope to close

it altogether. We may see a remarkable illustration of this in the history of what that admirable clinical physician, Dr. Gooch, called "the irritable uterus." The late Dr. Robert Ferguson, commenting on Gooch's description, said, "This malady, I believe, is deeply rooted in the very essence of that complex organic function termed the generative, which in its most comprehensive sense includes no inconsiderable portion of the moral as well as of the physical development of the female organization." Ferguson recognised, it is true, the fact that various morbid conditions of the uterus and ovaries were sometimes associated with the so-called irritable uterus. He says, "There is a form of the disease not described by Gooch. In this the purely nervous aspect of the malady is masked by some obvious change in the uterus or its appendages, but this change is by no means a constant one, either in its seat or nature. Sometimes there is a congested condition of the uterus, altering its shape into that of a retort, the enlarged and curved fundus being exquisitely sensitive of pressure. At other times the cervix or some portion of the uterine walls is the seat of congestion, of varying consistency, and of pain. . . . . The local changes have been the fluctuating, the nervous affection, the constant element; in it, therefore, and in no doctrine of a phlogistic origin can I place the essence of this strange disease."

Dr. West included these cases under the "congestive" class. Dr. Henry Bennet assigned inflammation as the real pathological condition. Dr. Rigby thought many cases were due to a rheumatic diathesis, and other authors have from time to time, impelled by the accidental nature of their experience, or the bent which preconceived theories had imparted to their observations, given prominent or exclusive importance to some one complication.

If we postpone theory and carefully analyse a large number of cases, noting the complications and the effects of treatment, we shall find that the cases of "irritable uterus" resolve themselves into the following groups, namely—1, in which there is manifest enlargement from congestion of the uterus;

2, in which there is subinvolution with chronic inflammation of the uterus following labour or abortion; 3, reclination or flexion of the uterus, most frequently retroflexion; 4, a projecting conical vaginal-portion, with very small os externum uteri; 5, disorder of distant organs, attended or not by one or more of the preceding structural faults, and almost always with impaired sanguification and nutrition; 6, a morbid condition of the ovaries; and lastly, a residuum of cases in which, whether from not pushing investigation to the proper point to discover the associated fault, or because there really is no physical fault, we are obliged to conclude that the dysmenorrhœa is simply the expression of nervous disorder. We may reasonably expect that advancing knowledge of uterine and ovarian pathology will still further diminish this residuum.

I think observation warrants this general conclusion:—The healthy well-formed uterus is rarely an "irritable uterus" or associated with dysmenorrhœa. Or the case may be stated as follows:—For menstruation to occur healthily and easily, the genital canal, from its commencement at the fimbriated extremity of the Fallopian tubes to the vulva, must be freely pervious. In the course of this canal there are three natural constrictions, namely, at the os uterinum of the Fallopian tube on either side, at the os internum uteri, and at the os externum uteri. It is at these points especially that difficulty is apt to arise. But if extreme narrowing occur at any other part of the canal, as in the vagina, similar results will follow. If the closure be complete, and menstruation takes place, of course there will be retention. If the closure be incomplete there will be partial retention, the expression of which is dysmenorrhœa. This partial retention and dysmenorrhœa we know is extremely common. Its phenomena should, I think, be studied in connection with those of complete retention. We shall find in this study endless illustrations of the proposition that one essential condition of dysmenorrhœa is *retention of menstrual secretion*. There is another condition to which retention of secreted matter is not necessary. In many cases where there is congestion of

the uterus combined with extreme nervous susceptibility, the pain is most marked at the onset of the period, that is, in all probability, before any pouring forth of blood into the uterine cavity has taken place. The pain is explained by the sudden distension of the morbid uterine tissue by the gathering of blood in the vessels preliminary to secretion. A close analysis will, however, resolve these cases also into the same class as the first. In both there is retention, the difference being that in the one case the menstrual blood is retained in the cavity of the uterus after secretion, and that in the other case the blood is retained in the tissues of the uterus. The point which brings both cases together is that there is difficult excretion, causing distension of the uterine fibre and nervous irritation.

The residual cases, which do not fall under one or the other descriptions of retention, are rare indeed.

Let me now invite attention to a series of clinical illustrations.

Case 1.—*Cicatricial closure of the vagina following labour; at first partial, then complete retention of menstrual fluid; dysmenorrhœa; operation; cure.*

In January, 1867, I met Mr. Powell, at Weybridge, in the case of Mrs. W—. Twelve years before, she had been delivered by instruments of twins after severe labour. From that time she had suffered more or less difficulty in menstruation. This had increased gradually and in a marked degree during the last two years. During the last three months her condition has become very serious. At each menstrual period severe colic with expulsive pains set in. An enlargement has been felt, rising considerably above the pubes. Partial relief has been obtained by the escape of blood and a very offensive ichorous discharge. At times retention of urine, calling for the use of the catheter, has occurred. The introduction of the catheter was difficult, owing to the urethra being compressed and deviated by the tumour. A period came round two or three days ago, with increased suffering and complete retention of the menses. The enlargement

of the uterus was rapid; it rose nearly to the umbilicus in twelve hours. There was great prostration and small pulse. We found the vagina quite occluded by contracted, dense, cicatricial tissue, extending from the meatus urinarius to the anus, nothing but a scarred furrow marking the site of the vulva. There was a minute red point, which seemed to be the opening of a fistulous track, but not even a small probe would pass into it. It is probable that this had been really the opening of a fistula which had on previous occasions given difficult and partial escape to the accumulated fluids above, but had now become quite closed. I determined to try and open up the vaginal canal next day. She passed a bad night from severe colic and efforts at expulsion, and on the following morning I found the uterine tumour just as large and firm as before. It was directed a little to the left. It was also felt per rectum, as a pouch projecting within the pelvis.

The patient was placed in lithotomy position. I passed a flexible male catheter into the bladder, and one finger into the rectum. I could then feel the hard dense column of cicatricial tissue between the bladder and rectum, which represented the obliterated vagina. I then, thus guided, made careful incisions into the cicatrix, and at about an inch above the outer surface struck the sac. A quantity of offensive ichor, mingled with dirty white clots, escaped. I then felt a small dense ring at the bottom of my incisions, no doubt the upper part of the cicatrix. This I enlarged by a Simpson's metrotome and a fine knife, until I could pass my finger through it. Then I found, beyond this ring, a widely distended pouch, formed by the dilated fundus of the vagina; at the extremity of this pouch I felt the os uteri slightly open, very soft. I could not reach into the uterus, but it was clear that the uterus also was distended, forming the supra-pubic tumour, as this gradually subsided as more and more of the ichorous discharge came away. The patient felt great relief, A compress and bandage being applied to the abdomen, she was put to bed comfortable.

Three days afterwards I had a letter from Mr. Powell,

saying "she was going on favorably; did not suffer much pain; the discharge was decreasing; she was very low; the catheter was used night and morning; no sign of inflammation, but he feared pyæmia; in fact, he thought she had been for some time past suffering from it to a degree."

It was my intention at a later period to restore the vagina more completely, but the patient, being relieved, refused further treatment. She got quite well.

Here was a case in which menstruation was healthily performed before there was stenosis of the genital canal, dysmenorrhœa beginning when the canal began to contract, increasing in severity as the stenosis increased, merging in retention when the stenosis passed into complete atresia, and disappearing when the atresia and stenosis were cured.

Let us compare with this case, which bears all the features of a well-devised course of experiments, one of dysmenorrhœa from partial retention of another kind.

Case 2.—Mrs. A—, a well-proportioned lady, had her first child three years ago, under a midwife in India; has never been strong since; never having suffered dysmenorrhœa before, she now suffers acutely at the onset of the period. When in India the flow was profuse; since she has been in England it is moderate. In addition to the dysmenorrhœa she suffered also from constipation, pelvic bearing-down pains, and her general health was much prostrated. I found the uterus three and a quarter inches long, the body enlarged, tender to touch, and decidedly retroflected.

On the 20th December last I applied a Hodge's pessary.

On the 24th January she was wearing the pessary with comfort; she was able to take exercise with ease; there was no leucorrhœa. She had menstruated without the usual distress. The uterus was in its normal position, and measured three inches only. I applied a stick of sulphate of zinc inside the uterus, and replaced the pessary.

On the 13th March her report was that she had menstruated regularly without pain or excess; that she was able to take exercise freely, and felt quite well. The uterus wa

exactly two and a half inches in size, and in its normal position.

Such cases as this I have no doubt most of my hearers can parallel by dipping into their note-books or calling upon their recollections. They are common. It is for this reason I introduce it here, to show, by comparison with the rarer cases of retention of menstrual fluid, that the cause of dysmenorrhœa is purely retention.

In this case we see a woman, well formed, menstruating normally until after childbirth, when the uterus became retroflected, then suffering from dysmenorrhœa, and cured simultaneously with the cure of the retroflexion.

Case 3.—The next case illustrates the same proposition in another way. Mrs. H— had always suffered dysmenorrhœa; this had increased after marriage, which remained sterile some years. Her medical attendant, finding the os externum uteri very small, dilated it by laminaria tents on several occasions. Each time the succeeding menstruation was comparatively easy, but the trouble returned with the contraction. I found a conical vaginal-portion, with small os, just admitting the sound. The uterus was normal in direction and size. I divided the vaginal portion bilaterally, and inserted a Wright's intra-uterine pessary. After that she menstruated without pain.

The next case is one of partial retention cured by operation.

Case 4.—Mrs. W— has been married three years without becoming pregnant. She is well developed in frame. Two years ago she had yellow fever in South America; her health has been indifferent ever since. She had always menstruated regularly, at times in advance of the period due, and lasting four or five days; not excessive in quantity. There had been dysmenorrhœa before marriage and since, but not constantly. But latterly, and especially since the fever, the dysmenorrhœa has been very severe, and has

evidently undermined her health and wrought a serious degree of despondency and other nervous symptoms.

Under these circumstances she came to England for advice. She saw two medical men in town, who told her there was nothing to be done. She came to me in October last, very discouraged, but determined not to go back to South America until she was either relieved or well assured that her case was hopeless. I found the vagina was a wide shallow cul-de-sac, not an inch deep. There was no projecting cervix uteri and no solid body in the roof of the cul-de-sac where the uterus might be expected to be found. About the middle of the cul-de-sac, however, was a small round hole, which just admitted the point of the sound. This had been taken to be the os uteri externum. The case looked unpromising, as no uterus could be felt in connection with it. I submitted her to further examination under chloroform. Then having passed a sound into the bladder and a finger into the rectum, I ascertained that for at least two inches above the vaginal cul-de-sac there was no uterus, nothing but the wall of the rectum and the wall of the bladder intervened. But about three inches beyond the anus I could feel a solid rounded mass, which I concluded to be the uterus retroverted. On passing the sound through the small opening in the vaginal cul-de-sac I found it proceeded two inches along the septum, between the bladder and the rectum, towards the solid body which I believed to be the uterus. I was now, therefore, in a position to conclude that there was atresia or closing of the vagina from a little above the vulva upwards along its whole extent. I am unable to determine whether this obliteration of the canal was congenital or acquired. It may possibly have been a sequel of the fever she suffered two years before.

The position of things being recognised by Drs. Aveling and Hewer, who assisted me in the operation, I determined to open up the obliterated tract of the vagina so as to establish a free communication with the body above, which I took to be the uterus. This was done under chloroform,

assisted by Dr. Aveling and Dr. Hewer, at two different sittings at an interval of a month. Starting from the minute opening in the vaginal cul-de-sac, I separated the bladder from the rectum, partly by incising, partly by tearing with my fingers, until I could fairly touch the solid body through the new canal. When this was done I ascertained that this body was the uterus; it was more rounded than natural, its fundus was directed forwards, it was the cervix directed backwards which was felt through the anterior wall of the rectum. It was now clear that there had been a small cavity representing the upper part of the vagina, into which the cervix uteri opened; that this small cavity was closed in just below the cervix uteri by the fusion of the vaginal walls, if such had ever existed; that a fine devious fistulous tract ran from this upper vaginal cavity to open into the lower vaginal cul-de-sac; that the menstrual discharge had with great difficulty made its way along this fistula, which was always in danger of closing.

(The state of the parts was illustrated by a sketch.)

I did not succeed in getting a sound into the os uteri, but this will probably be effected at some future time. To maintain the new vagina I have applied a small elongated Hodge's pessary, the upper arch of which, under the leverage which is the principle of the action of this most useful instrument, is carried high up into the restored vaginal roof. A month after the last operation the vagina was well preserved, and examining by a Fergusson's speculum during a period I could see the menstrual fluid being poured into the summit of the vagina. For the first time she was menstruating without pain, and her health and spirits were already improved. She has now menstruated healthily several times, and her health is fairly restored, and there is no return of contraction of the vagina.

The following case is also one of retention relieved by operation.

Case 5.—On the 18th July, 1862, the following case came under me at the London Hospital.

J. F—, æt. 28, had one child eight years ago; menstruated until seven months ago, when she had typhoid, since then no menstruation. Was in hospital under Mr. Critchett; presumed to have some form of syphilis. I found the vagina represented by a short cul-de-sac, the roof of which was quite smooth, no cervix or os felt projecting, nor could the uterus be distinctly made out between the finger in vagina and the hand above pubes. I concluded that there had been sloughing of cervix uteri and vagina and closure by granulation and cicatricial contraction. By speculum was seen at the highest point of the roof a cicatrix-like spot. She suffered nearly every day from pains "like labour-pains," which were commonly appeased by hot flannels. No pain on defecation. On the 25th her state was the same. I advised her to come in, but this she postponed doing.

On the 8th August she came, suffering acute abdominal and pelvic pains, and was admitted. Aided by Mr. Little, I proceeded to open up the obliterated vagina. All that remained of vagina was a shallow cul-de-sac close behind the nymphæ. The perinæum being retracted by a duck-bill speculum, I made cautious incisions with a pointed bistoury through the middle of the white cicatrix; partly stretching by fingers, partly by small nicks, I made a canal an inch long and wide enough to admit the tip of my finger. After the first incision I was guided in further progress by causing the fundus uteri, which was plainly felt as a large globe above the pubes, to be pressed downwards and backwards, so as to throw the cervix downwards and forwards. By this means the cervix was felt to project at the bottom of the wound. The operation had now lasted an hour, and it was considered desirable to postpone further proceedings.

On the 10th the operation was proceeded with. A catheter in the bladder, held well under the pubic arch, kept the neck of the bladder away from the knife. The finger in the rectum felt the lower segment of the uterus distended. Cautious nicks were again made, taking care to work in the

cicatricial tissue a little forward, so as to avoid puncturing Douglas's sac. Presently the os uteri was tapped, as was manifested by the oozing of a thick, tenacious, brown-black blood. So tenacious was it that it could be drawn out in a string by forceps. It was not considered right to seek to empty the uterus; the organ was left to empty itself by its gradual contraction. An opium suppository was placed in the rectum, and a compress was applied to the abdomen to press the uterus down in the pelvis. In the course of two days the uterus emptied itself. She had not a bad symptom.

On the 9th the uterus could not be felt above the pubes. I was unable to pass a sound into the os uteri. The patient, feeling well, insisted on going out.

On the 16th September pain occurred at the menstrual period and subsided without any discharge. She was re-admitted. The upper part of the vagina had closed again, excepting a small round canal, which admitted the sound three quarters of an inch. By bistoury and stretching I opened this up again. She went out again relieved. She was a recalcitrant patient, who rejected treatment as soon as she was released from urgent distress.

I am unwilling to lengthen the paper by detailing other cases of dysmenorrhœa from partial or complete retention due to stenosis and atresia. I may simply add that I have seen all the phenomena of dysmenorrhœa passing into retention in a case of gradual closure of the cervix uteri following on amputation of the cervix uteri for malignant disease.

It would lead us too far to attempt here to trace the complete history of stenosis and atresia of the genital canal. On several occasions the subject of retention from imperforate hymen has been well illustrated by cases and discussion in the Society. I need, therefore, do no more here than offer such reflections upon this form of retention as will serve the purpose in hand.

Imperforate hymen being a congenital fault, we have not

the same opportunity of tracing dysmenorrhœa into retention as in cases of acquired or gradually forming atresia. But the lessons drawn from cases of retention from congenital atresia have also their value. In these cases there is apparent amenorrhœa; but as there is actual secretion of the catamenia, a more correct term would be "occult menstruation." Retention begins with the first secretion, and pain, often severe, attends. This remits, and is renewed or exacerbated periodically under the ovarian stimulus. The patient, in fact, has attacks of dysmenorrhœa; but how, it may be asked, is it that, retention of menstrual fluid being continuous, the attacks of pain are not persistent also? The explanation is this:—There are certain compensatory processes which bring temporary relief, and which avert or postpone the catastrophe which is always impending in these cases. These accommodating processes are—1. The gradual yielding and growth of the uterus and vagina, enabling them to hold a larger quantity of fluid without stretching the uterine fibre. 2. The watery part of the blood is absorbed, hence the inspissated treacly character of the fluid that flows when the obstructing barrier is removed. But as every monthly increment of blood is thrown in more or less suddenly, the uterine fibre is stretched, and dysmenorrhœal symptoms recur. 3. After a time the obstruction often leads to difficulty of secretion, perhaps to inactivity of the ovaries, so that a diminished quantity of blood is secreted at each period.

Hence it is that the enlargement of the uterus and abdomen is so gradual, so far from corresponding to what might be estimated from the addition of the full amounts of all the monthly secretions.

The following case presents a close analogy to dysmenorrhœa. It is one of frequent occurrence.

Case 6.—Mrs. D—, aged over 50, never pregnant, has latterly fallen into wretched health; has frequent attacks of vomiting; has become emaciated and nervous; has a discharge tinged with blood, and at times offensive, preceded by uterine colic. She was referred to me by the physician

whom she came to town to consult. I found the vagina and vulva small, undergoing some degree of senile atrophy; the vaginal-portion projected somewhat; the os externum was quite occluded. I could not get a sound to pass in. There was acquired atresia, partly the result of original stenosis, partly of advancing senile contraction, and partly of agglutination by inspissated secretions. I penetrated the closed os by a fine knife, carried in a sheath, such as is used for dividing stricture of the male urethra. The sound then readily went the normal length; relief quickly followed. Some pent-up mucus escaped. Some weeks later she had continued to improve, and there had been no return of discharge or colic.

It is not necessary to adduce similar cases in which long-standing dysmenorrhœa was cured by incision of the os externum, relapse occurring when the os contracted again, and a permanent cure was obtained when the os was kept patent.

In cases of anteversion and anteflexion without stenosis dysmenorrhœa has been time after time relieved or averted by the passage of a sound a day or two before the onset of menstruation. By this means and rest the uterus was redressed for the occasion, and the obstruction and retention were averted. If this measure was at any time omitted the dysmenorrhœa was sure to come, and the body of the uterus became very sensibly enlarged. Permanent cure has constantly followed permanent restoration of the uterus to its proper position.

Another cause of dysmenorrhœa, and often of hæmorrhage, is the fixing of the uterus by perimetric deposits, coming on after labour or abortion, or other conditions. The fixing of the uterus, although commonly attended by patency of the cervix, seems to me to cause dysmenorrhœa by preventing the uterus from contracting, and also by favoring engorgement of its tissues.

Dysmenorrhœa is a not uncommon attendant upon fibroid tumours, which either produce obstruction by twisting or

compressing the cervical canal, or by keeping up a state of congestion, or by interfering with the effective regular contraction of the uterus. Dysmenorrhœa from the first cause is frequently relieved by dilating the cervical canal either by tents or incisions.

Many other instances will occur of pain analogous to that of dysmenorrhœa produced by the retention in the uterus of blood-clots, as after labour and abortion, of intra-uterine polypi, of the exfoliated mucous membrane in the dysmenorrhœa membranacea, or, in fact, of anything which distends and irritates the uterine cavity. The difference in the symptoms and the degree of severity depend, not so much on the nature of the substances retained, as upon the completeness of the retention and the nervous susceptibility of the patient.

A further proof that dysmenorrhœa is due to retention lies in the changes the menstrual fluid undergoes, and the characters it presents when discharged. In some cases, especially those in which there is such excess of blood as to deserve the designation of menorrhagia, the escape being impeded, and the mucous secretions of the cavity of the uterus being insufficient in proportion to preserve the normal liquid state, clots form. In other cases, in which there may be no excess of quantity, the retention is so protracted, or the quantity of catarrhal mucus mixed with it so large, that the fluid, when discharged, closely resembles in its syrupy consistency and dark colour that which is pent up by an imperforate hymen. This is markedly so in some cases of temporary retention from compression of the cervical canal by a fibroid tumour. But it is not uncommon in obstruction from retroflexion and from stenosis of the os externum. The discharge is often also offensive to the smell.

With all this variety of illustrations concentrated into one focus, we shall be justified in repeating the proposition with which we started, namely, that the essential cause of dysmenorrhœa, at least in the great majority of cases, is retention of the menstrual secretions. The exceptions in my experience are very few. And yet among these few exceptions there are

some which I should hesitate to consign to the neuralgic asylum. We meet with cases every now and then in which the dysmenorrhœal symptoms are very severe, although there is no obvious stenosis. In some of these I have found the uterus small, perhaps inclined to one side, set in a short non-distensible vagina; sometimes the os externum is preternaturally small, but even after freely dilating this the dysmenorrhœa persists.

The subjects of this kind of imperfect development, for such it is, are commonly of a highly nervous temperament, acutely sensitive of pain, and it would be easy to say they suffer from "irritable uterus" or neuralgic dysmenorrhœa. But this refuge seems unsatisfactory. In some of the subjects it is certain that the hyperæsthetic condition has been gradually developed, caused by the frequent pain and imperfectly performed function, and was not a primary condition. In some cases I have seen great improvement, even cure, from the use of Simpson's intra-uterine galvanic pessary.

There is a feature in the history of stenosis and atresia of the genital canal which it is interesting to describe on account of its bearing on treatment. Under the condition of stenosis or atresia long persisting this canal obeys the same law which rules over other canals or hollow organs. It undergoes retrograde dilatation above the seat of stricture. This is the almost inevitable consequence of the futile attempts of the muscular coat to expel the retained contents.[1] This effect is seen in the most marked form in cases of imperforate hymen. The vagina, being the most distensible part of the canal, dilates first, forming a large pouch; then the cervix uteri is distended, then the cavity of the body of the uterus, and, lastly, the Fallopian tubes. This dilatation, conservative in its effect by accommodating the contents which cannot be evacuated, has its limits. When these are reached, the danger of rupture or perforation at the weakest part is great. But before this comes to pass there are two events which may

[1] This successive ascending dilatation of vagina, cervix, body of uterus, and tubes, were illustrated in sketches taken from preparations in Guy's, St. George's, and the Radcliffe Museums.

happen. The first is transudation of the more fluid part of the contents under the concentric compression to which it is subjected. Dr. Matthews Duncan has shown that under a certain degree of hydraulic pressure air or liquids penetrate the entire wall of the uterus. This is the old Florentine experiment of the metal globe applied to organic tissues. His experiments, of course, were performed on dead tissues. But it appears to me that there is good reason to believe that the force which the living uterus exerts in its efforts to expel what may be in it, whether it be a fœtus or imprisoned fluids, is enough to drive fluid through its walls in the form of a fine oozing or dew, which hangs on the peritoneum. It seems to me probable that it is in this way that some cases of puerperal pelvic peritonitis are produced, and I have seen cases of septicæmia and peritonitis occurring from retention of menstrual fluid greatly resembling puerperal fever, in which there was no rupture and no escape of fluid by the open ends of the Fallopian tubes.

Supposing that the structures retain their integrity, it is natural that the concentric compressive force should drive the contents along any passage that may be pervious. Hence the escape by preference along the tubes. This is rendered more likely by the dilatation which commonly takes place at their uterine ends.

This compressive force is exerted with most effect immediately after the puncture of the closed hymen. The sudden collapse of the walls of the uterus ensuing upon the partial escape by the opening excites the uterus to contract. This contraction drives the contents along all the three canals, and some will probably escape through one or other of the tubes into the peritoneal cavity.

The more common event, however, is the laceration of the tubes at the weakest place, caused by the sudden dragging upon them by the retreating uterus, the tubes being, perhaps, held back by adhesions.

It has frequently been discussed in this Society and elsewhere, how this catastrophe of sudden escape of the uterine fluid into the peritoneal cavity can best be averted. Some

have contended that it is better to make a very small opening in the hymen and let the fluid drain away gradually, hoping that in this way the suddenness of the collapse of the uterus might be diminished. This is the plan I have hitherto followed. But others have preferred making a free incision at once, and even proceeding to wash out the cavity. I am not sure that this is not the best plan. A free external outlet would make it easier for the contracting uterus to expel its contents by this route, and thus take off the pressure towards the tubes. On the other hand, the rapid retreat of the uterus would favour laceration of the tubes if held back by adhesion. The balance of advantages and of drawbacks of either plan is difficult to strike, and it is to be apprehended that cases will continue to occur in which a fatal result will follow any method of treatment.

A plan which I should be disposed to try is to draw off a little at a time by the aspirator trocar, so as to effect a very gradual diminution of the cavity before finally freely dividing the obstruction. In any case absolute rest should be rigidly enforced.

When these cases of retention have been relieved and have apparently recovered, it must be remembered that the Fallopian tubes do not at once, perhaps not for a long time, recover their normal calibre. Some degree of abnormal dilatation remains. This is certainly the case in the partial retention due to stenosis of the cervix and to retroflexion. The knowledge of this fact is of the highest importance in practice. The long-continued obstruction having entailed dilatation of the uterine cavity and catarrh of its mucous membrane, with very often a disposition to menorrhagia, the physician is tempted to inject astringent fluids into the uterus. It is well known that fatal accidents have followed this practice, and much discussion has taken place as to the immediate cause of these accidents. The prevailing idea is that the injected fluid is driven along the tubes by the force of the syringe, its return by the cervix being stopped by the injecting tube which fills it. I am disposed to believe that where there is unusual patency of the Fallopian tubes this may occasionally

be the case. But the more common mechanism I am convinced is that which I have just explained as occurring in retention from imperforate hymen. The astringent fluid thrown into the uterine cavity acts primarily as an irritant and constringent. This action is forcible and rapid. The cavity instantly contracts and pumps on the fluid along the patent Fallopian tubes.

That this was what occurred in a case in which a solution of perchloride of iron was injected into the uterus on account of hæmorrhage from retroflected uterus in the London Hospital seems to me beyond doubt. The tubes were found patulous, and fluid had run along them into the peritoneal cavity.

It is important, then, to recognise it as a general fact that whensoever the uterus has long been subjected to stenosis or flexion there will very probably be patency of the Fallopian tubes, and consequently facility for the transmission of fluids from the uterine cavity into the peritoneal sac.

Bearing this danger in mind, I am not satisfied with observing the rule, very properly insisted upon by Dr. Routh and others, of obtaining free patency of the cervical canal before injecting; I prefer not to inject at all, but to apply styptics, either by swabbing or in the solid form. For example, a suitable intra-uterine pessary can be made by mixing perchloride of iron with cocoa-nut butter, or, the cervix being open, we can paint the inner wall of the uterus with a glass-brush steeped in chromic acid. Of course I am here speaking of the non-pregnant uterus. To control post-partum flooding, I still employ the method of injecting.

There is another consequence of the dilatation of the cavity of the uterus which is interesting. Dilatation is extremely likely to be attended by catarrh; indeed, some authors say that catarrh is the cause of dilatation. The mucus resulting collects in the cavity until this is filled, when it causes irritation and expulsive pain resembling an attack of dysmenorrhœa. This is commonly relieved by the discharge of a quantity of mucus which the patient will often describe as "matter from the bursting of an abscess." Supposing the

secretion of this catarrhal mucus to go on, as it mostly does, at a tolerably uniform rate, the uterus will be filled in a given fixed time, say in a week or a fortnight. Hence the periodicity, more or less exact, which is sometimes observed in these cases. If the attack returns midway between the menstrual periods, it may be called "intermenstrual dysmenorrhœa." The term is a bad one, although it may seem to be justified by a little blood being mingled with the discharge. This is not uncommon, and may be explained by the congestion which complicates these cases.

The facts narrated and the reflections I have ventured to express bear so directly upon the treatment that I think it unnecessary to enter at length upon the discussion of this the true end of every clinical investigation. I have done this partially on former occasions, and so have other Fellows of the Society. I will not, therefore, do more than simply point to the logical deduction from the theory of the essential cause of dysmenorrhœa set forth.

The indication to remove the obstruction, whether this be complete or incomplete, is so obvious as not to need discussion. At least no one disputes the necessity of doing this if obstruction be complete, and the expediency of doing the same thing when the obstruction is incomplete rests upon the same logical basis, the difference being that in the latter case the necessity of operating is less imperative. In the first case life is in imminent peril, in the latter life is not immediately imperilled. It is a question of relieving suffering and of restoring the organs to their natural healthy functions.

Dr. Playfair said that every one would willingly admit the great value of the paper which Dr. Barnes had read, and the interest of many of the cases he had brought forward. The view which he so strongly advocated had been equally strongly upheld by Bernutz and Goupil, and other writers. It would, no doubt, be very satisfactory if we could explain the suffering connected with dysmenorrhœa by the presence of one condition alone. It would unquestionably greatly simplify our study of the affection. Unfortunately, however, it appeared to him that clinical facts

were not in accordance with a theory so seductive from its simplicity. He had no wish whatever to throw the least doubt upon the mechanical theory as explanatory of a large number of cases. On the contrary, he believed it to be a very frequent cause indeed, and an important one. Many of the cases Dr. Barnes had brought forward conclusively proved this. But then several of these were of quite an exceptional character, such as only come under the observation of a practitioner of his great experience. Others, such as flexions of the uterus, fibroids, &c., are, no doubt, active causes of the painful menstruation, and can only be remedied by the removal of the obstructing cause. But besides these he was inclined to think that there are a far larger number of cases than Dr. Barnes allowed where nothing of the kind can be found. Take for example those, so frequently met with, which have been classed under the head of congestive dysmenorrhœa. Here the pain is entirely or chiefly felt before the menstrual secretion is established; the moment that comes on the bleeding relieves the congestion and the pain vanishes. Clearly there can be no menstrual retention in the ordinary sense here, but even these cases Dr. Barnes refers to the same category by an hypothesis which, to say the least of it, seems a very remarkable one. He says these cases resolve themselves into the same class as the others, "the difference being that in the one case the menstrual blood is retained in the cavity of the uterus after secretion, and that in the other case the blood is retained in the tissues of the uterus." But surely there is all the difference in the world between pain which results from the efforts of the uterus to expel what is practically a foreign body in its cavity, and pain which results from the presence of an undue amount of blood in the vessels of the organ? Pain of the latter class is common, not only in the uterus, but all over the body, and it is just such a condition that produces the pain of a gum boil or some similar affection, and here, as elsewhere, the pain is relieved as soon as loss of blood relieves the loaded vessels. No doubt, in the large majority of these cases there is some local condition of the uterus which explains the congestion, and which should be carefully searched for, such as chronic inflammatory condition of the uterus or a morbid state of its lining membrane. It is because these exist that the congestion of the menstrual nisus produces pain, which it should not do in a healthy state of the uterine structures. It should be noted, too, that in many of these cases the cervical canal is found to be morbidly patulous rather than constricted. Then there is a class of cases of some importance to which Dr. Barnes makes no allusion, which may be described in cases of ovarian dysmenorrhœa. In these the pain has probably nothing to do with the uterus at all, but would seem to depend on the changes going on in the ovary in connection with

maturation of the Graafian follicle, and the discharge of the ovum. In these the pain is more or less distinctly referable to the site of the ovary, and not infrequently the enlarged and tender ovary can be felt on vaginal examination immediately before, after, or during the menstrual period. While, therefore, fully admitting the importance of mechanical causes of dysmenorrhœa, he believed that we should be taking a more philosophical and correct view of the affection if we did not try to force our explanation of them too rigidly into one groove.

Dr. Snow Beck quite agreed with the remark that this paper was founded on erroneous principles, which, if adopted, would lead to improper practice, especially in the virgin. Pain, or increased pain, at the menstrual period—dysmenorrhœa as it was termed—was an attendant on most of the diseases of the uterine organs, and one of the distressing ailments, often a most troublesome one, from which the female frequently sought relief. It would be impossible to go over, at the present time, the various diseases which induce this pain, many of which had little relation to each other. But it might be stated broadly that it was induced by any defect in the menstrual secretion, either congenital or acquired, or by any alteration of the uterine organs from a condition of health, either congestive, inflammatory, or structural. Not unfrequently it arose from deficient development of the uterine organs, apart from any mechanical obstruction to the menstrual flow, and sometimes appeared to depend upon an unusual nervous susceptibility of the individual. No doubt it every now and then was caused by a mechanical obstruction to the menstrual flow, whether this arose from congenital defect, or from an acquired alteration, the result of some previous disease. But these were only exceptional cases when compared with the frequency with which it was met with as a symptom of other diseases. The idea of this mechanical obstruction was a very seductive one; had been frequently taken up by different observers, and as frequently dropped after further experience as being a very inadequate explanation. He was unable to understand the statement that when the obstruction did not occur in the natural cavities of the organ it was caused by obstruction in the tissues. Dr. Barnes did not mention the particular types or tissues in which this supposed obstruction occurred, or the changes in these tissues by which it was accomplished. It was, he suspected, one of those imaginary statements too often indulged in and made without any sufficient foundation in ascertained facts. Some of the classes of cases met with in everyday experience were alluded to to show that in most of them there was no clinically observed facts sufficient to justify the statement that obstruction was "essentially" the cause of this pain. The case mentioned by Dr. Barnes, where

a lady, after her confinement, complained of pain during menstruation, and on examination the sound passed $3\frac{1}{2}$ inches, did not afford any evidence of obstruction. Since attention had been directed to these cases they were found to be of too frequent occurrence. The whole of the uterus remained enlarged, the external orifice often so patent as to admit the end of the finger; the cavity of the neck was large; the sound readily passed the internal orifice, and, by the freedom of the motion allowed, evidently entered an enlarged cavity in the body. The vagina also was generally large and ample, and the menstrual flow came away freely and without the least evidence of any coagula, yet was attended with great pain. No doubt, in many of these cases, there was a bending of the uterus forwards or backwards, but the attending pain was not greater in those cases than in others where the organ was found to be straight. Sometimes relief was afforded by passing the sound through the internal orifice, which was followed by the escape of a small amount of blood; but where this proceeding succeeded once it failed in the large majority, and was often so painful that the women after a few trials declined to have it further repeated. Again, these enlargements of the uterus were every now and then met with where the menstruation appeared naturally, and without any increase in the usual inconvenience; and the absence or presence of the attending pain appeared to depend upon the condition of the blood-vessels. In the examples where the pain was increased all the vessels were enlarged; the arteries, the veins and the capillaries, and the organs were greatly congested; where there was little attending pain the enlargement of the organs existed without the accompanying congestion. He suspected it was these latter cases which had been described as fibroid enlargement of the whole of the uterus. In other cases met with in the virgin and in women who had borne children the pain and accompanying distress was more intense. The condition of the organs was also different. The great enlargement was not present; but the organs, sometimes both the vagina and the uterus, were hot, very sensitive to pressure; the introduction of the sound into the uterine cavity caused severe pain, and the arteries pulsated strongly and quickly under the fingers of the observer. Whether the condition was called chronic inflammation, active congestion, or whatever term, it appeared pretty evident that the severe pain during menstruation was produced by the increased congestion attending the menstrual function; much in the same way as the increased pain induced in an inflamed part whenever it was allowed to remain in a descending position; and this explanation appeared to be confirmed by the relief afforded by the local abstraction of blood, whether by the application of leeches or by scarification. In another class of cases, by no means unfrequent, and met with in

the virgin as well as in the married female, the pain arose from irritation, or chronic inflammation, of the vagina, where obstruction was totally out of the question. In these cases the pain came on two, three, or four days previous to, and ceased, or was much relieved, on the appearance of the menstrual flow, was of a constricting character, attended with shooting pains up the vagina and bearing-down feelings, the pain being seated deep in the hypogastrium, in the groins and lower part of the back. He was aware that those cases were usually described as of ovarian origin, but was convinced that this error arose from want of careful observation. That these symptoms arose from affections of the vagina was well shown in the case of a young lady, which proved fatal, and was published by the late Mr. Obré in the 'British Medical Journal' for 1857. In another class of cases this vaginal irritation or congestion appeared to depend upon great constipation of the bowels, and was often met with in the virgin. Pain in the head, want of appetite, distress after taking food, and general languor were the attending symptoms, when on inquiry the bowels were found much constipated, being relieved once or twice a week and insufficiently. Gradually pain came on at each menstrual period, deep in the hypogastrium and lower part of the back, with shooting pains and bearing down. All of which symptoms passed away after a time when free and regular evacuations of the bowels were obtained, aided by cold and soothing vaginal injections. It was in these cases that guaiacum, which had been long recommended for painful menstruation, appeared to be of much service. Again considerable congestion of the rectum accompanied with hæmorrhoids, but without any noticeable affection of the uterus, was attended with great pain during each menstrual period, which appeared to be induced by the increased congestion of the pelvic veins accompanying the menstrual period. In fact, nearly all acquired, as distinct from congenital, alterations of the uterine organs from a state of health was attended with more or less increased pain during menstruation, and some affections of the neighbouring organs gave rise to a similar increase of pain. The subject of 'The Irritable Uterus' was too long and too complicated to be considered at the present time. In conclusion, he had no hesitation in expressing his belief that obstruction to the exit of the menstrual flow formed but a small proportion of the cases attended with increase of pain during menstruation, and that the treatment directed "essentially" to this object would in the large majority of instances be attended with unfavorable results.

Dr. Rogers said that he must dissent from the conclusion, as far as he understood it, which the author of this most excellent and practical paper appeared to have arrived at, and must agree with the opinion of the preceding speakers that dysme-

norrhœa was not a disorder depending solely on obstructive causes. Those who, like himself, had been in the practice of their profession over five and twenty years, and before the theory of obstruction was acknowledged and taught to be a cause of this affection, must have cured undoubted cases of dysmenorrhœa, and have known such cases cured in the practice of others. He had been for years physician to the Samaritan Hospital, where at an early period obstruction was recognised to be an important cause of dysmenorrhœa, and several of his colleagues have even invented instruments for operative treatment of such cases, and he had on many occasions used these instruments when other means have failed, and the case required it; and he had operated in cases similar to those brought before the Society by Dr. Barnes. In his opinion many cases occur from other causes, such as ovarian, rectal, or pure neuralgic disorders. It may be remembered by the Fellows that his colleague, Dr. Routh, had read papers before the Society with cases on a form of dysmenorrhœa arising from what he called fundal endometritis, where every care had been taken to eliminate all obstructive cause, and yet the dysmenorrhœa persisted.

Dr. Tilt thought the author had failed to make good his aasumption that dysmenorrhœa was always caused by the retention of the menses in the uterine cavity, and Dr. Tilt thought it was unjustifiable to give cases of menstrual retention by vaginal occlusion as illustrative of dysmenorrhœa. He thought the most frequent cases of obstructive dysmenorrhœa were those in which the obstruction was clearly spasmodic; cases in which dark blood and blood clot were passed after two or three belladonna-and-opium suppositories had been introduced into the rectum; the cervical canal freely admitting the uterine sounds forty-eight hours after menstruation. He said he had repeatedly met with cases in which dysmenorrhœa was intense, although the cervical canal was perfectly free, the discharge of a florid colour and without clots. The dysmenorrhœa in those cases sometimes depended on chronic inflammation of the menstruating surface, sometimes on morbid ovulation and subacute ovaritis; whereas, in exceptional cases, the complaint would only be considered as a neuralgia of the menstruating womb.

Mr. Spencer Wells believed that a very large proportion of cases of true dysmenorrhœa depend upon mechanical impediment to the free escape of the menstrual fluid, and are curable by removal of the obstruction. Sympathetic pains in the breast, or elsewhere, and nervous symptoms common at the menstrual period should not be confounded with true dysmenorrhœa. He narrated cases in which severe obstructive dysmenorrhœa had been cured by replacement of the flexed uterus, by dilatation of

the cervical canal, and by opening a closed vagina. In the last case careful inspection is much safer than using a trocar.

Dr. Barnes, in reply, thanked the speakers for their criticism, which would be exceedingly useful to him. There was no time left to answer each in detail. The criticisms with which he had been favoured had excited in him some surprise. He had anticipated rather being found fault with for bringing before the Society propositions too trite, and which no one disputed. He had not expected to hear so many expressions of dissent. The general tenor of the observations made was to attribute to him a more absolute reference of cases of dysmenorrhœa to retention as the cause than the paper justified. He admitted that there were other causes; he had expressly cited ovarian conditions; but he could not assent to the conclusion that because in many cases of dysmenorrhœa pain was referred to the region of the ovaries, the cause in these cases was necessarily due primarily to ovarian diseases. It was just to remember that Henry Bennet long ago pointed out that ovarian pain was symptomatic of inflammatory condition of the uterus. It was also symptomatic of other diseases of the uterus. When these diseases were cured the ovarian pain vanished. Dr. Playfair missed the true application of the cases of complete atresia to the question under discussion. Certainly they were rare, but such a case as the one of the woman menstruating easily whilst the genital canal was healthy, menstruating with increasing difficulty and pain as the closure of the vagina advanced, then suffering all the ills of retention when the closure was complete, and lastly being cured of her dysmenorrhœa when the vagina was restored, afforded a series of proofs to which the best designed series of experiments that could be devised could add little, that dysmenorrhœa was due to incomplete retention. Dr. Snow Beck's anxiety lest the adoption of this theory of retention should lead to mischievous treatment might be allayed by the reflection that if no cause of retention were discovered there would be no operation necessary to remove it. One rule indeed flowed from the clinical observations, namely, that in cases of dysmenorrhœa persisting and injuring the patient's health, examination of the condition of the organs whose functions were impaired should be made.

WEDNESDAY, May 1, 1872.

John Braxton Hicks, M.D., F.R.S., President, in the Chair.

Present—35 Fellows and 3 visitors.

Books were presented from Dr. H. J. Bigelow, Dr. Gusserow, Dr. H. Löhlein, Dr. E. A. Martin, Dr. Sänger, Dr. William Turner, Dr. Paul Zweifel, and the 'Gesellschaft für Geburtshülfe zu Leipzig.'

The following gentlemen were admitted Fellows of the Society:—Mr. J. R. Bosworth, Dr. W. L. Richardson, Dr. Thomas Savage, Dr. Algernon Temple, Dr. Wellesley Tomkins, and Dr. W. C. Wise.

The following gentlemen were elected Fellows:—Michael Coote, M.D. (Quebec); N. S. Kerr, M.D. (Liverpool); Jos. McMonagle, M.D. (St. John's, New Brunswick); W. K. MacMordie, M.D. (Portadown, Armagh); F. D. Niblett, M.B. (Hackney); and John Wallace, M.D. (Liverpool).

Dr. Wynn Williams exhibited a large-sized mucous polypus he had removed the same day from a patient at the out-department of the hospital. He considered it interesting more on account of the history of the case than for itself, for although large for a mucous polypus, there was apparently nothing extraordinary in its character.

Mrs. B—, æt. 45, mother of two children, the younger ten years of age. Three miscarriages since birth of the

last child. She has for the last six years suffered more or less from excessive losses. Stated she had not menstruated since 18th of December last, but has suffered from a discharge of bloody matter. On placing the hand on the abdomen, there could be no doubt that she was about seven months pregnant. Examination *per vaginam* with the finger revealed, it might be said, nothing; the os was felt swollen, soft, and open. It would have been most difficult to have diagnosed the case without using the speculum. A rugose and vascular-looking mass, the size of three fingers, was seen hanging by a pedicle out of the os. There was also a small mucous polypus attached lower down near the os. Dr. Williams at once proceeded to remove the larger growth, drawing it slightly downwards; a ligature was placed on the pedicle just within the os, the interior of the uterus being disturbed as little as possible, and the polypus divided with a pair of scissors below the ligature. The smaller one was then removed by torsion, and the parts swabbed with a saturated solution of tannin in spirit of wine, which completely arrested the very slight bleeding.

In answering the remarks made on the case, Dr. Wynn Williams considered that the patient would stand a much better chance of completing the full time of utero-gestation after the removal of the growth, than if it had been left alone, remarking that it should not be forgotten that the patient had aborted on three previous occasions. In answer to Dr. Heywood Smith, he considered that if the larger growth had been removed by torsion, springing, as it evidently did, high up in the neck, the contents of the uterus would have run a much greater risk of being disturbed and abortion produced than by the means adopted for its removal.

Dr. Phillips said that he had removed a polypus in a similar case a few days previously. The patient was under his care in Guy's Hospital, and had a good-sized muco-cellular polypus attached to the cervix uteri, and she was six months pregnant. The hæmorrhage to which it gave rise was enough to induce him to remove it. The question of greatest interest suggested by Dr. Williams' case and his own was the advisability of removing

polypi during pregnancy. It seemed necessary in deciding the question to take into consideration the amount of disturbance to which the polypus gave rise; but generally he thought that abortion was less likely to be induced by the removal of a polypus hanging out of the os uteri than by allowing it to remain. The result in the case to which he referred had been in every way satisfactory.

Dr. Routh said he had some time back seen a similar case in the country with a practitioner. He was called in in consequence of the hæmorrhage, and to know whether he could advise artificial labour to be induced. On examination, a polypus somewhat larger than that of Dr. Williams' case was found projecting, and by the use of the speculum was seen distinctly. Dr. Routh felt an operation might induce labour, nevertheless, he considered this should be brought on, and then the polypus removed to prevent a recurrence of bleeding. The lady, however, for some reason or other delayed the operation, and labour came on in two or three days. The polypus, however, was not found, and probably was torn away with the head of the child. The practical point was not, however, settled in Dr. Williams' case, as he did not know yet if his operation would or would not bring on a miscarriage. It was in his (Dr. Routh's) mind quite safe to remove a polypus.

Dr. Barnes exhibited, for Dr. James Blake, of San Francisco, a modification of Hodge's pessary, consisting in the substitution of watch-spring for the usual solid Lich-bars. This modification gave elasticity to the pessary, which, whilst it increased the efficacy of its leverage action, diminished the risk of shock or concussion.

The President exhibited a specimen of syphilitic disease of the placenta from a case which had occurred in the practice of Dr. Godfrey, of Enfield, of which the following history was given:—

A. B—, æt. 24, the picture of health up to the time of marriage, which occurred on the 8th of June. Menstruated last on 10th July (one month after). The second week in September I was called to see this lady. She then had a secondary rash all over her arms, chest, ulcerated tonsils, and a primary sore upon the vulva. I put her under blue pill, five grains, three times a day. The mouth soon became

sore. I kept her under the action of mercury up to the 25th of October. In January I put her again under the influence of blue pill; copper-coloured blotches again appearing.

On the 17th of April she gave birth to a living male child, and the dead fœtus which is now attached to the placenta. Her labour lasted for about twelve hours, and severe hæmorrhage came on before the placenta was expelled.

History of the husband.—This was his second wife, the first having died in labour, from hæmorrhage, some ten years ago, she having Bright's disease. He is scarred with the remains of venereal disease upon the face and neck.

Query.—Was not the Bright's disease probably caused by syphilis? Lardaceous disease of kidney is such a common result of the venereal poison.

I have seen many of these venereal patches in placentæ, and in every case profuse hæmorrhage took place before the expulsion of the placenta. I believe it to be not an uncommon cause of death after labour.

Dr. Madge said that an examination of the placenta, apart from the patient's history, would hardly lead to the conclusion that its morbid condition was caused by syphilis. Other causes would produce similar appearances.

Dr. Barnes said that the specimen exhibited seemed to him a good one of the syphilitic placenta. Dr. Brunton had correctly described the distinction between fatty and fibrinous degeneration. The fatty degeneration implied no effusion; but the white patches or lumps often found were no doubt the result of blood or fibrin extravasations, and certainly were not necessarily associated with syphilis. When he was engaged in working out the subject of fatty degeneration, many placentas having these masses in them were sent to him as samples of fatty placenta. They were not so, for the villi were often healthy. In the syphilitic placenta the fibrinous or albuminoid effusion was uniformly distributed; there was, as Virchow says, hyperplasia. This was the condition which so frequently led to abortion if it had made progress at an early period.

Dr. Wiltshire said that he supposed the case might be regarded as one of syphilitic placentitis, and that perhaps this was the immediate cause of death of the fœtus in syphilitic cases. He asked whether syphilographers would admit that a primary

sore could be contracted from a person supposed to be the subject of tertiary syphilis, as was propounded in the present instance?

The PRESIDENT exhibited for Mr. Greives, of Stamford, a fœtus with a peculiar growth springing from the mouth. The specimen was referred to a Committee consisting of Drs. Black and Potter.

Mr. WORSHIP exhibited a specimen of deformed fœtus, of which he gave the following history:—

Mrs. S—, æt. 34, the mother of five children. I have attended her in all her previous labours, which have been natural, but slow.

She has been more unable to attend to her usual occupation during this pregnancy than in any former one, from her much greater size, and from very considerable œdema of her legs.

I was called to her at 1 a.m., April 10th; but being at another case, my partner (Mr. Dunlop) saw her, but found the os only slightly dilated, but there had been a discharge of an unusually large quantity of liq. amnii.

I was sent for to her at noon, and then found her with very violent labour pains; the os was fully dilated, and the child still above the brim of the pelvis; this continued for four hours without any perceptible change in the position of the child.

The pains getting weaker, and she feeling very exhausted, I requested Mr. Dunlop to bring his forceps at 5 p.m.

With some considerable trouble I applied the long forceps, and for some little time tried by steady traction to effect delivery, but neither could I nor Mr. Dunlop make any difference in the position of the child.

Under chloroform I tried to turn the child, but I could not reach a foot, and the size of the head and the strength of the pain prevented my more than feeling the tip of the toes.

We determined then to perform craniotomy; this I did, perforating the skull, and applied a blunt hook. After

the head descended somewhat I applied short forceps, which had the effect of getting rid of the greater part of the brain, and by dint of a further long pull with the blunt hook we managed to get the child away.

The cause of the difficulty was very evident from the peculiar angular prominent occiput, and after the head was reduced in size, by the very large body of the child. The arms and legs are also very deformed. The woman has made, thus far, an uninterrupted good recovery.

CASES IN PRACTICE.

By James Milward, M.R.C.S., Cardiff.

Case 1 is that of an acephalous monster. The mother had been in labour two days when the gentleman in attendance requested me to see her. I found the face presenting

and something soft and pulpy besides which I could not make out. There was very little pain, but the woman was getting tired of the protracted labour. Passing my hand into the vagina, I got the neck between my fore and middle fingers, and pulling against the angles of the jaw, brought down the head, and delivery was completed. The mother did well. The sketch shows the condition of the child. There was

no calvarium whatever, and the skin that should have covered it was lying on the upper surface of the base of the skull. Growing from the centre, by a small neck, towards which the skin was rather puckered, was a circular nodulated tumour, about two and a half inches in diameter, and soft in texture, having somewhat the appearance of brain substance, but of a dark purple colour. The child was born at the full time, was of ordinary size, skin white and sound, and presented no appearance of having been long dead.

I regret that an examination was not permitted.

Case 2.—A young woman, recently married, engaged me to attend her confinement, and in course of time sent for me, saying that she was in labour. On examination I found that she was not even pregnant, the abdomen was merely distended with flatus, which in about a month after was quite gone, and the patient became well. Shortly afterwards she

was really pregnant, and when about one month advanced she went to a fair at Gloucester, and in a show there, saw a man without hands writing with his feet. This "gave her quite a turn," and the impression of disgust remained very

vividly stamped upon her mind throughout the whole of the pregnancy. At about seven and a half months or rather more the child was born, and the accompanying sketch represents him.

The right arm was perfect; the hand was divided into two parts, on the one of which was a rudimentary thumb, and one large finger, made up of two with a sulcus, but not a perfect division between them; the other part was made up of the ring and little fingers in a natural condition.

Left arm there was none, but issuing from the shoulder were a thumb and two fingers, the thumb and one finger standing out straight when at rest, the second finger flexed upon the shoulder. The child lived in good health for two months, when he died of a four days' attack of diarrhœa.

I do not wish to lay too much stress upon the story of the show, but give her statement as I had it. But I must say my experience seems to point to the conclusion that, while infinite nonsense is talked about mothers' marks, still strong maternal impressions at an *early* period of utero-gestation may be so far stamped upon the offspring as to arrest the development of parts beyond the condition in which they are at the time of the receipt of the impression.

CÆSAREAN SECTION IN 1866: SUBSEQUENT PREGNANCY AND DELIVERY PER VIAS NATURALES: RECOVERY.

By William Newman, M.D. Lond., F.R.C.S. Eng.

Mrs. O—, æt. 32, residing at Cottesmore, Rutland, underwent the operation of Cæsarean section in July, 1866, and recovered. A full account of the case appeared in 'Obstet. Trans.,' Vol. VIII, 1867.

The local conditions which obstructed labour and led to

the diagnosis of epithelial disease of the lower part of the uterus are thus described from notes taken at the time:

The normal tissue of the cervix, as ascertained by touch, is replaced by a very unusual hardness, circular, uniform, and infiltrated apparently into body of uterus in every direction, for more than an inch in extent; beyond this distance the uterine tissue feels normal, is influenced by the uterine contractions, and through the normal tissue resistance resembling the child's head can be felt. The cervix is eaten away at its posterior lip into a deep sulcus, into and around which the finger passes readily, the anterior lip is as hard as the posterior, irregular, with a hard nodulated or granulated feeling to finger, but not exhibiting to the touch any very distinct hollow or tissue destruction. The os has a well-marked edge anteriorly, merging into the sulcus behind, but yet has there an edge which stands up to finger, and in great measure bounds the sulcus; feels to finger as if it were an opening cut out of a piece of cartilage, perfectly hard and resisting, and beyond some half an inch in depth, the tip of my forefinger cannot be made to penetrate.

A silver catheter, and then a very large gum-elastic catheter, could be slipped through the deeper and more closely narrowed part of the os; some liquor amnii escaped on this being done.

At last to make myself quite sure as to the appearances, I introduced a large size (Fergusson's) speculum, and could readily bring into full view the deep sulcus, the small narrow orifice, and the thickened anterior lip, throughout denuded of epithelium, granulated, and furnishing watery oozing and sanious fluid, leaving no question in my mind that we had to deal with extensive epithelioma of the cervix and lower part of the body of the uterus.

After her recovery in October, 1866, I made a careful examination and took the following notes:

To digital examination the uterus is larger and more heavy than it should be, but perfectly movable. The cervix uteri has reassumed in some measure the ordinary tapering form; it is in the normal position. It is very hard in its whole

extent, and prolongations, so to speak, of hardened tissue can be made out extending in every direction into the textures of the lower segment of the uterus.

As seen through the speculum, the anterior lip appears comparatively sound, *i.e.* with no actual destruction of tissues. The posterior lip is irregular and in great part eaten away ; in this the sulcus (noted before the operation) may still be found though not so markedly. The os uteri is a very small puckered opening, appearing about a quarter of an inch in diameter, and its edges are like cartilage to the touch. Both the os and cervix exhibit a surface almost entirely denuded of epithelium, granular and irregular in outline, and have, with the imperfect light at command, much of the naked-eye appearance of epithelial disease.

I had not for some time seen her when, August 1, 1871, she came to my house.

History.—She has been in fair health, menstruation fairly regular until commencement of April, 1871. Twice since (May and June) she has been slightly unwell. Some, not much, morning sickness. She fears she may again be pregnant.

External examination.—The recti muscles are widely separated down near to the pubes, and when she stands up there is some, but not large, hernial protrusion.

When the hand is more deeply inserted, so as to get in some degree behind the muscular walls, an enlarged uterus, at all events a hard body of some size, can be felt, the size of a fœtal head.

Vaginal examination shows that the tumour to be felt in the abdomen and the lower segment of the uterus are continuous.

The os and cervix are hard, otherwise very nearly natural. Some feeling of deep lines of hardness about the whole lower part of the uterus, not, however, well defined.

In all probability she is about three months pregnant.

August 30, 1871.—Dr. Barnes was so good as to give me the benefit of his opinion, and saw her with me in town. He advised that the pregnancy, which probably existed, should

not be interfered with unless urgent symptoms should declare themselves.

January 2nd, 1872.—Admitted under my care into the Stamford Infirmary. A day or two after admission I made a careful vaginal examination.

Cranial presentation: os slightly open; into each iliac region runs a line of firm cicatrix, very hard and resisting, and, indeed, radiating in every direction; from the os, as a centre, can be felt lines of hardened tissue; the thickness of the uterine tissues covering the head of fœtus would seem to vary somewhat—thick near the os, becoming irregularly thinner towards the sides of the pelvis.

No detectible breach of surface; some redness just within the lips of os to be seen with the speculum.

Fœtal heart distinctly audible on left of midline, and about two inches below umbilicus.

The anterior coverings (abdominal and uterine wall) are very thin, and the limbs and position of the fœtus can be readily traced by the fingers from without.

January 9th.—No special change until this evening. She has been and is in fair general health throughout; complains at times of weight and local uneasiness.

Pains occur irregularly both in back and abdomen; there is some increase of vaginal moisture.

10th.—Mr. Gibbings (the house surgeon) noted that the os was slightly more open; pains continued through the day and became more severe and more regular in recurrence.

11th, 11 a.m.—Evidently labour has well set in, the pains are regular and markedly influence the uterus; the external os is open to nearly size of a shilling, with edges which feel very firm and hard. The local hardness before noted is very evident, and when uterine contraction comes it is to be felt standing out almost in ridges under the finger.

4 p.m.—Os now about size of a shilling; external orifice has given way, but the internal os is very firm, like a ring of whip-cord or cartilage, and does not appear to give at all; unbroken bag of membranes to be felt through the os. The pains are decided, recur every five or ten minutes, and are not well borne.

I introduced at once the smallest size of Dr. Barnes' elastic bags, though with some little difficulty, and as the hard ring of the os gave to the water pressure, I employed two larger sizes. In little over an hour (5.30 p.m.) the bag last introduced escaped.

6 p.m.—Os now size of crown piece or rather larger; edges not so hard or resisting, but thick, and do not easily yield to pressure of finger; liquor amnii drains away since last bag escaped; pains less effective. A wide abdominal bandage was very firmly applied.

7 p.m.—Os a little larger and more dilatable; pains not of much avail. Now, however, she complains of much abdominal tenderness on pressure, and speaks of an exceeding soreness and feeling of burning internally when uterine contractions come on; says that she first felt this about 5 p.m, and that it is now much more intense.

8 p.m.—Mr. Heward (my colleague) kindly saw her with me; for last hour she has had little pain, but complains much of the burning sensation in midline of the abdomen. Os dilatable, head high up above brim of pelvis.

With Mr. Heward's full concurrence I applied Simpson's long forceps; os uteri just large enough to allow the blades to be introduced; very little force was employed, and this only at intervals, when pains were feebly present. The os gave way after a little time; the vaginal tissues and perinæum offered no resistance, and in about twenty-five minutes from first application of forceps I extracted a living male child at full time of utero-gestation; face directed to left foramen ovale.

The placenta was easily pushed off by some tolerably firm abdominal pressure; not much hæmorrhage.

The uterus, after expulsion of contents, was found to present on its anterior surface a very well-marked and rather deep sulcus in which (so to speak) two fingers might be placed side by side, this doubtless corresponding to line of union of divided uterine wall.

I applied the long forceps so soon as I could introduce the blades, because by so doing I should supplement ineffective uterine action, and save the poor woman needless suffering,

but most of all because the persistent burning pain in the abdomen seemed to point very decidedly to an undue stretching, and, therefore, to a not impossible giving way of the cicatrix in the wall of the uterus.

The after progress needs no comment; it was in all points satisfactory. The woman was able to nurse her child, and finally left the infirmary February 6, 1872 (twenty-sixth day after delivery).

I have brought this sequel before the Obstetrical Society as an interesting pendant to the operation of 1866.

That operation was undertaken with the approval of others and in the honest belief that we were doing what was right and best for our patient. The history and the appearances all seemed to warrant the diagnosis of epithelial disease, and on this impression the abdominal section was made.

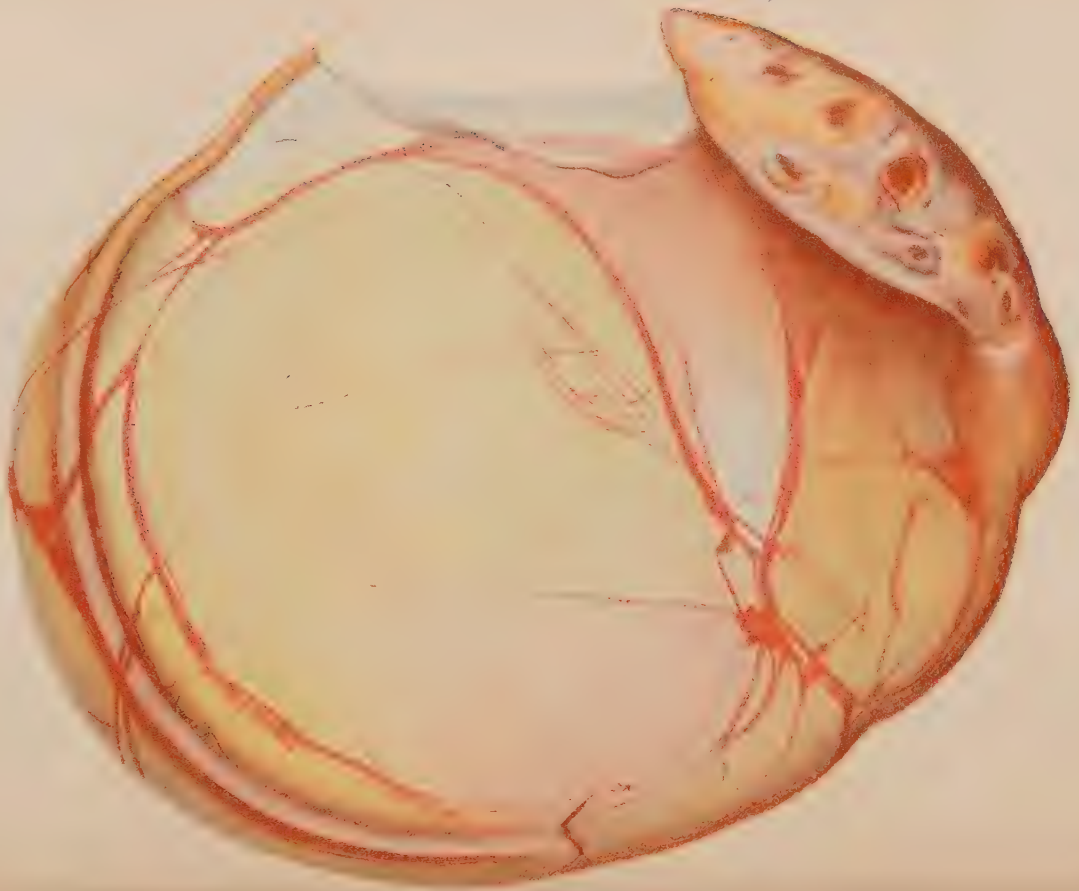
The subsequent history here given, with the successful instrumental delivery, will not be, I trust, without some permanent value.

Dr. Barnes said, when he had the opportunity of examining the woman with Dr. Newman he found no distinctive mark of malignant disease, only a cicatricial condition of the os. As he thought this might be overcome by incisions and hydrostatic dilatation he had advised letting her go on to term. It had been suggested to him that the real disease which obstructed labour when the Cæsarean section was performed might have been pelvic cellulitis. The cure of extensive malignant disease was so rare that this suggestion seemed worthy of consideration. On the other hand, it was shown that the uterus was moveable, which was consistent with cancer affecting the cervix only, but hardly with cellulitis; and, moreover, the characters described by Dr. Newman seemed very precise. The complete elimination of cancerous disease was not unexampled. Thus, Dr. Habit relates a case in which a mass of cancerous tissue was cast off by sloughing, and recovery with cicatricial atresia followed.

Dr. Playfair said that he had once seen a case in which the Cæsarean section was necessitated by circumstances not described in text-books as possibly indicating the operation. The patient was a native woman in Calcutta, who was brought into the Medical College Hospital there, under the care of Dr. Wilson, the Professor of Midwifery. She had been many days in strong labour, and the pelvic cavity was found to be so blocked up with exudation, probably from pelvic cellulitis, that it was found

absolutely essential to perform the Cæsarean section. In Dr. Newman's case there was evidently some serious obstruction present at the time, which might possibly have been a chronic inflammatory induration of the cervix. In all probability the diagnosis of epithelioma was erroneous. This was likely not only on account of his patient's subsequent complete recovery, but because the physical signs described in his paper were certainly not those characteristic of that disease. The cervix is described as being hard, irregular, and cartilaginous, a description that might apply to the ordinary forms of carcinoma uteri, but certainly not to the soft, sprouting, cauliflower-like condition met with in epithelioma. However this might be, the necessity for the operation, carefully considered by most competent authorities, was obvious; and this interesting case, in connection with the one he had mentioned, was calculated to teach us that there might be undescribed forms of dystocia from morbid conditions of the soft parts calculated to give rise to the most serious difficulty in delivery.

Dr. Rogers said he could not concur in the opinion of the author of the interesting case just read; he rather believed it to be analogous to one he had recently under his care. It was that of a Swiss lady, about 40 years of age, in labour of her first child. After labour, accompanied with severe pains, had gone on for some hours, he discovered on examination a hard, irregular cervix *unopened*. Above two drachms of laudanum were injected into the vagina ere these pains ceased and sleep was induced. From time to time during the following night pains accompanied by sickness returned, which only produced a change on the cervix sufficient to allow the finger to pass into it, giving the feel of a hard, rigid, thick tube. The head was felt presenting during the second day; the pains were continuous and steady, and, aided by Dr. Barnes' dilators, the os was opened to the size of a shilling; some rest and cessation of pain was produced at night by injections of laudanum and the use of chloroform; the patient would only allow instruments to be used while under chloroform, as the passage of the finger into the vagina gave great pain, so but little advancement in the dilatation of the os by her pains and the dilators was produced. Dr. Rogers felt it advisable to scarify and incise carefully the thick, rigid, unyielding cervix on the third day, and again applied the dilator, which now caused the ring to yield to some extent, and then it tore into irregular warty pieces, allowing the scalp tumour to come down and aid the further dilatation; the amniotic fluid had drained away early in labour. Under the use of liq. secale labour pains continued strong, and the head descended steadily. He endeavoured to apply the forceps to abridge the time of labour, but the head was so large that it wholly filled the brim, and it could not be used. At last



a living male child was born after more than seventy-two hours' labour; the placenta came away readily, and the patient is doing well. Doubtless, on examination of the cervix, some points of interest will be noted which he will make known to the Society. The child weighed over twelve pounds.

Dr. Routh said that Dr. Barnes' observations were entirely opposed to his experience. So far from believing that pregnancy cured or retarded cancer, he believed the very reverse. As in the case of fibroids, pregnancy *hastened* the development. He remembered a case of cancer of the os in the Lying-in Hospital at Vienna. After a very long labour the cervix came away entirely as a hard ring, being torn off by the child's head. It was incapable of dilatation. The woman died the second day. In another case it was torn across, and death followed a little later. In the case in question the description did not apply to simple epithelioma, but might to ordinary carcinoma. Still, it could apply equally to a case of *chancre*, the circular part eaten away, being the original situation of the chancre, which might have become phagedenic. Hard crevices were frequently evidence, not of *cancer*, but of *syphilis*, and differed in this respect. In time they were dilatable. Was there any history of syphilis in this case ?*

THE ANATOMY OF THE HUMAN PLACENTA.

By J. Braxton Hicks, M.D., F.R.S.

So much has been written on the structure of the human placenta, and such distinguished anatomists have been engaged on the subject, that it might seem superfluous on the one hand and arrogant on the other to endeavour to add to the literature of the subject. Still, having had many opportunities of examining the organ not only detached, but in *situ*, and at various stages of its development, and having arrived, through these, at a belief that the now commonly received opinion is not borne out by these examinations, I

* The author of the paper gives the most decided negative to the supposition that syphilis existed in the patient—not one single symptom of the disease could be found on the closest inquiry.

venture to bring forward that which appears to me as the correct view.

It will be of no advantage here to go through the entire history of the subject. This will be found by reference to the numerous works on the placenta; a list of the various authors up to 1792 is given by Sœmmering ('Icones Embryonum Humanorum'); by Dr. F. Adams of Banchory (in a Pamphlet reprinted from the 'Medical Times') in 1858;* and by Dr. Priestley in his work on 'Gravid Uterus.'

A careful revision, however, of the opinions of authors both before and since will show that they may be ranged into two divisions: namely, those who favour the Hunterian or sinus-system theory, and those who oppose it. For we must regard those two other observers who seem to have made apparently independent discoveries, Reid and Goodsir, to be really only supporters of the Hunterian theory,—Reid describing the villi as penetrating into the sinuses in the uterine walls; Goodsir not adding original observations on the maternal sinus-system, but utilising Hunter's opinion as an exemplification of the cell theory of nutrition and decay. It is true he has described bands which he says pass from one villus to the other, and which he considers proofs of the existence of maternal vessels in the placenta, but beyond this he has only accepted Hunter's opinion.

Hence it will occur that in the following remarks particular stress will be laid on Hunter's theory, because if that be incorrect then those who accept it as their basis, at any rate, will be incorrect. I must refer the reader who may wish a full account of the method he adopted to his own clear account of it in his 'Animal Œconomy,' second edition, p. 163, but I may here give a summary. The body of a woman who had died in labour undelivered was injected from the aorta first, and then from the vena cava by wax injection of yellow and red colours. After this was cold the uterus was taken out and dissected. In the placenta between the villi both yellow and red wax was found in "irregular mass of injected matter." On lifting carefully the uterus from this, he "observed regular pieces of

* Brown & Co., Publishers, Aberdeen.

wax passing obliquely between it and the uterus, which he broke off, leaving part attached to that mass; and on attentively examining the portions towards the uterus, they plainly appeared to be a continuation of the veins passing from it to this substance, which proved to be the placenta." He then describes the appearance of the irregular mass, which he says showed that it was contained in cells, and was evidently of regular kind, not like extravasation. He also observed that the arterial injection returned into the venous openings. Thus was laid the foundation of the sinus-system of the human placenta.

But from the opinion thus arrived at by Hunter, namely, that a sinus-system exists, now commonly received as the correct view, I am forced to differ. For neither my own observations, nor a careful review of those of others, tend to confirm that opinion, but, on the contrary, lead to an opposite conclusion.

In the following pages I shall endeavour to describe the anatomy of the placenta, discussing, at the same time, the probabilities of a sinus-system; and in doing so I shall

1st. Criticise the arguments used in favour of a sinus-system.

2nd. Endeavour to show that if a sinus-system exists, there is no period of a transitional state.

3rd. That from dissections early or late in pregnancy there is no evidence of the existence of such a system.

(*a*) That there is no blood normally in the intervillal space;

(*b*) That no openings from blood-vessels into that space exist;

(*c*) That the curling artery expends itself by its ramification into the decidua of each lobule;

4th. Describe the anatomy of the placenta and its growth, as shown by dissection.

5th. Advance arguments against the sinus-system drawn from pathological conditions.—

I. *Criticism of the arguments used in favour of a sinus-system.*

And at the commencement I must take exception to the mode of demonstration employed by Hunter, for upon this rests principally its value as proof of the existence of the sinus-system. There is no doubt but that if the wax arrived at the inner surface of the uterus, it would penetrate into the space between the villi, whether there be natural channels or not for it to pass through. Because, if as I believe I shall hereafter be able to prove, there are no openings naturally at the line of the placental decidua, but that there is only the delicate lining membrane of the blood-vessels interposed as they come in contact with the villi in the course of their ramifications over the inmost layer of the uterus opposed to the placenta, then it is very easy to see how injections of such coarse material as wax, driven with force through the vena cava and aorta, would break down these attenuated barriers and burst into the intervillal space, and diffusing itself amongst the villi assume a definite form according to the space between (which indeed is very limited), and even return by another opening by the breaking down another thin membrane from within. The only difficulty under such circumstances would be to explain the reason why it would not, and therefore I hold the evidence derived from that source as of no critical value; and I would extend this observation to all injections of any density, *e. g.* made with size, and propelled with any but the most delicate touch. I would therefore, because of the inconclusive character of the evidence they afford, exclude all observations made by means of injections from the maternal side, as proofs of the presence of natural openings into the space between the villi. This, however, of course does not prevent our holding injections as proofs against their existence; because, if, notwithstanding the use of injections, no distinct channel can be made evident, it is to be inferred that such do not exist.

Further, Hunter says, that when he pushed a pipe into the substance of the placenta, and injected it, the injection filled it in every direction, that the injected fluid came out through the *vessels* on the uterine surface of the placenta [the italics are mine]. From the tenour of the preceding remarks it

may be gathered that the same answer would be equally applicable, namely, that the wax would burst through any delicate membrane forming the wall of the vessels which opposed it, and thus it would enter the vessels. But if the same experiment be made with coloured water, the result stated by Hunter does not occur. I am, of course, not aware what amount of pressure he put on the piston, nor the size of the syringe; but employing no more force than would be requisite to drive the water through natural openings had they existed, I have repeatedly and universally failed to cause the coloured water to escape through any of the vessels of the decidua of the placenta. The only openings through which the coloured water has escaped are those which occur from a deficiency in the placenta decidua (serotina). It is exceedingly rare to find a placenta having this portion perfect; besides fissures produced in the process of detachment, there are spaces through which the naked villi can be seen, because the serotina has been left attached to the uterine surface. It is only through these vacuities and rents that coloured water injected into the substance of the placenta escapes.

The coloured water like the wax fills the whole intervillal space, but this proves nothing for nor against the existence of the sinus-system.

It might be rejoined that this non-escape of the injected water through the blood-vessels opposed the objection just brought forward, that the wax had broken back into the vessels after filling the placenta. But a little consideration will show that the conditions are different. In the one we have the placenta *in situ*; and the wax cannot escape, as in the case where the water is injected in a detached placenta, by which escape the pressure is removed to a certain extent and the breaking down of the thin membrane less liable. Still if natural channels exist the injected water would surely, notwithstanding tension being somewhat lessened, flow through them and appear on the surface.

If the possibility of error in relation to Hunter's method above alluded to be admitted, then a door is opened for free discussion on the subject, and an opportunity afforded for the

facts I have to adduce to have their full weight; but if, on the contrary, it is still maintained that Hunter could not have been deceived in this matter, then that which follows will be without influence, and the time spent in its perusal thrown away.

The same remark also applies to the use of probes, bristles, or hairs, which by some have been employed to substantiate Hunter's opinion, because, and for the reason given above, there is no resistance to sensibly offer opposition.

It may be asked why does not the cardiac impulse suffice to break down this membrane, if it is so readily destroyed by injections. This I think it is not difficult to explain.

No doubt the counter-pressure of the contents of the uterus is sufficient for all ordinary purposes; the amnial fluid secures the constant adaptation of the placenta at all times. But there is a great difference between the pressure of injection and that of the cardiac impluse, which cannot be very intense by the time it reaches this last turn in the curling arteries; for it must be remembered that when injections are made, only one set of vessels are under pressure at one time, the others being flaccid, and thus less general support is given. Again, the circulation is not altogether carried on by mere pressure of the cardiac impulse, but is largely assisted by chemical action in the capillaries and by the traction (if we may so call it) towards the right side of the heart. Still further, after death the healthy vital contractility of the uterine tissues is absent, whereby the counter-support from its contents is lost.

But when venous congestion arises it may be asked, why does not effusion of blood take place amongst the villi? The fact is that it frequently does occur producing either abortions, or the solid moles, or otherwise destroying the integrity of the ovum; it is into the intervillal space the blood is effused and there coagulated. Still it may be said that the blood is not always poured into the cavity of the placenta to any great extent. To this it may be replied that there is another part at which the vessels may also give way, and that is at the line of separation of the decidua of the placenta (decidua sero-

tina) and the uterine serotina;* so as to allow effusion of blood between the placenta and uterus. At this part the vessels are very unprotected, and liable to be ruptured by concussions, &c., or by venous congestions, producing the separation more or less of the placenta well known to obstetricians.

I will examine another argument which has been adduced in favour of the maternal sinus-system.

It has been said if you place a newly delivered placenta on a plate or other flat surface, and wipe it dry from adhering blood, that in the course of one or two hours a considerable quantity of blood has escaped. This it is argued has come from within. I quite admit it does, indeed it can scarcely be otherwise.

It flows from two sources—

1st. From the sinuses (maternal) of the placental decidua which are plentifully found in the decidual processes, which have not quite emptied themselves.

2nd. From the blood which during the expulsion of the placenta has entered through the openings just above described in the placental decidua. And I may here state that I have in the examination of a very large number of placentæ, found that the amount of blood which is found in the intervillal space after delivery, is in the direct ratio to the amount of these openings: so that in the vary rare case of an almost perfect decidual covering, scarcely a trace of blood is found within that placenta.

Let us for a moment assume the absence of the sinus-system and suppose that the space between the uterus and chorion is occupied by nothing but the villi. Let us suppose (which is really the case) that the villi are in such close contact with each other that only capillary sized interspaces exist between them, and consider the action of labour on a placenta of this construction.

It has been already detached from the uterine surface, and now remains in the uterus ready to be expelled. Some few ounces of blood are poured out from the uterine surface during this interval, and therefore the placental decidua is

* As named by Professor Rolleston.

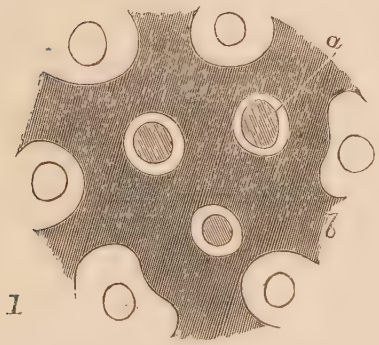
bathed by it. By capillary attraction some blood is drawn in or by uterine action is forced in amongst the villi through openings already mentioned, and thus is diffused throughout the interior of the placenta.

It seems therefore not unreasonable to say that should the circumstances lead us to believe in the absence of a sinus-system the occurrence of blood amongst the villi need not form an insuperable objection to our rejection of it. The same may be said of the after-flow from the decidual sinuses.

Again, in support of the opinion that a sinus-system exists, the statements of Dr. Reid have been quoted, where he says that he had seen villi penetrating into sinuses beyond the exact limits of the line of separation.

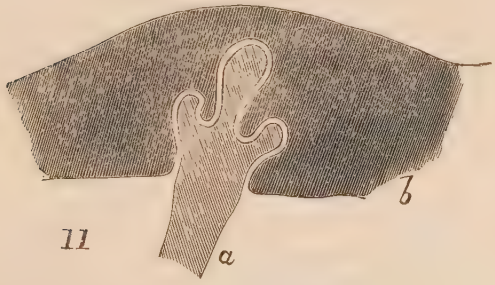
But here again the explanation is easy without our requiring the assistance of such a system.

Under any arrangement there are to be found sinuses which are situated at the line of separation, partly encroaching on the placental and partly on the uterine side, and not in the placenta strictly speaking; under either arrangement the villi, growing vigorously as they do, particularly towards full term, press in all directions and dip into inequalities or any yielding portion they find, and thus push into these sinuses. When the placenta separates the ends of the villi in some cases remain behind. The fact mentioned by Reid is the result of pressure in consequence of the enormous growth of the villi. It occurs towards full term of pregnancy, and in the more robust placentæ. Thus Dr. Reid's observations, it seems to me, need not be adverse to the rejection of the sinus-system. Indeed his words, quoted by Dr. Carpenter, seem rather to be in favour of the opposite view, for he says "the tufts of the villi dip down into the uterine sinus, where they are still covered and held in their places by reflexions of the same membranes." Now this same membrane is, as I shall expect to be able hereafter to prove, the dilated wall of a sinus, which, being in the decidua of the placenta, abuts towards the villi, and these pressing against it, indent it deeply, and being adherent to it, as all villi are more or less on the inside of the decidua serotina, their tips remain behind when the placenta is removed.



I.—Diagram of the placenta on the supposition of placental maternal sinus, showing that the secondary branches cannot unite to the neighbouring villi, *i.e.* if the tips penetrate between the maternal network at the beginning.

a. Fœtal villi.
b. Maternal sinus.



II.—Diagram of placenta on the supposition of placental maternal sinus, showing that the secondary branches cannot unite by their tips, where they push their ends against the walls of the sinus, unless they cause the two layers of maternal sinus to unite.

a. Fœtal villi.
b. Maternal sinus.

II. *That there is no period of transition if a sinus-system exist.*—Having now considered the most weighty arguments in favour of a sinus-system, I will proceed to inquire into the *time* at which the sinus-system has been supposed by its supporters first to make its appearance; and this inquiry is important, because on the clear understanding of it, our opinion as to the existence of the system much depends.

For if when the decidua reflexa first envelopes the ovum there is merely the attachment of the villi by their tips, and if at mature pregnancy the sinus-system is complete, it is self-evident that one of these three conditions must have occurred, either—

1. That at some intermediate period this arrangement must have been in a transition state, or—

2. That from the earliest formation of the villi and from their earliest attachment to the uterus the process of interweaving of villus and maternal capillary must have been going on; so that the outer surface of the chorion, whence the villi spring, was always in contact with the capillary walls, or—

3. That at some period or other the blood is extravasated into the inter-villal space, by the breaking down of the walls of the dilated capillaries, according to the theory of Van der Kolk and some others.

Let us examine the first supposition. Most of the writers who have believed in the sinus-system have not handled the subject at all clearly. Hunter himself was not explicit. Goodsir, much quoted in this matter, says, when describing the process of growth or development, "when the ovum has arrived at a certain stage of its growth, * * * at this period the ovum has approached the thickened mucous membrane, or that usually described as the decidua serotina. About the same time the allantois bearing the umbilical vessels, applies itself to the internal surface of that portion of the chorion opposite to the decidua serotina, and the villi of that portion become vascular."

Thus it is pretty clear that Goodsir considered that the change took place early, not long after the entrance of the

Fig. 1.

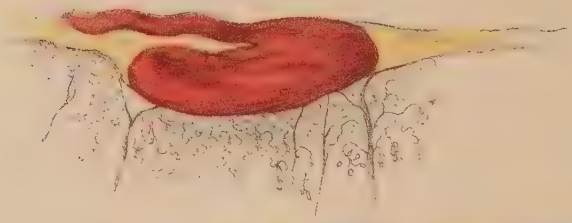
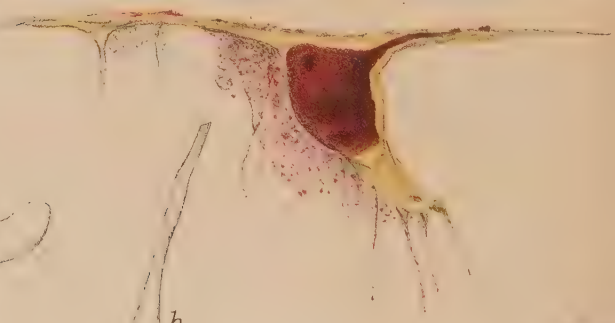


Fig. 2.



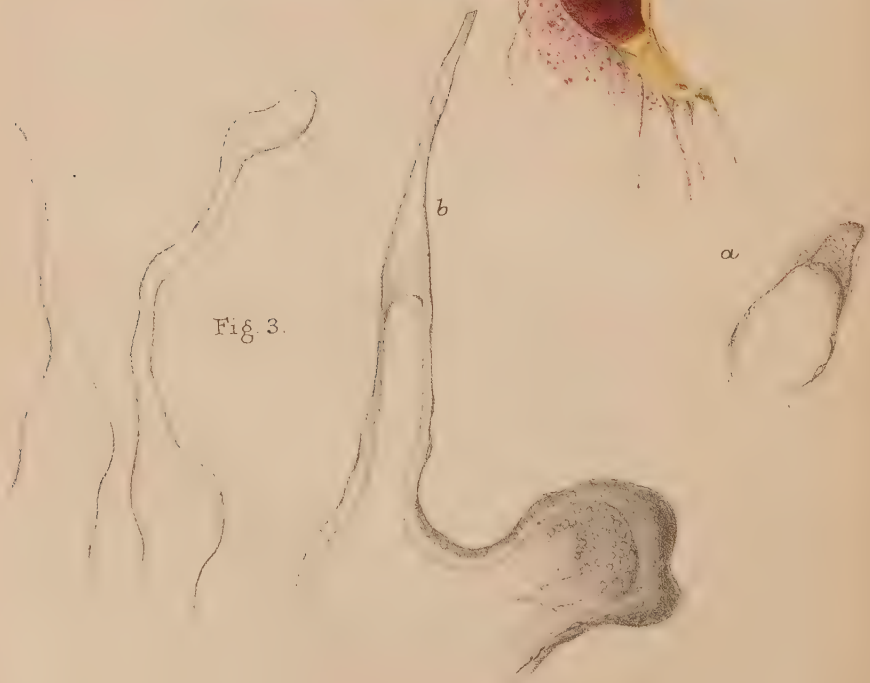


Fig. 3.

DESCRIPTION OF PLATE II.

Figs. 1 and 2. Dilated venous sinus and curling arteries in decidual processes.

Fig. 3, *a*. Termination of villus, small portions of decidua remaining attached to it.

b. Villus at seat of rupture, like appearance described by Goodsir as attachments to adjoining villi.

ovum into the uterus. He then goes on to say "that the decidual vessels enlarge and assume the appearance of sinuses, encroaching on the space formerly occupied by the cellular decidua, in the midst of which the villi of the chorion are imbedded. This increase in the calibre of the decidual capillaries goes on to such an extent that finally the villi are completely bound up or covered by the membrane which constitutes the walls of the vessels, this membrane following the contour of all the villi, and even passing to a certain extent over the branches and stems of the tufts."

Thus it appears that he did not consider the *bases* of the villi to be covered by the dilated capillaries; it follows, therefore, that there should be found at some point between the chorion and the tips of the villi a distinct membrane, which should show the limit to which the maternal portion of placenta extended. It may here be remarked that Goodsir describes the dissection of an unopened pregnant uterus, undertaken in the manner adopted by Professor Owen, namely, by following the course of a sinus through all its windings by means of a probe. Concerning the deception which must arise from this plan I have already remarked, and need not repeat the arguments here, further than to say that the closer we approach the placenta, the more delicate and easily lacerable do the tissues become. The excitement to the cell growth which made the decidua pulpy extends also some distance into the uterine walls.

Goodsir also laid much stress upon certain bands, which he says he noticed in this dissection, passing from the tip of the villi to the parietal decidua; and also from the tip of one villus to another. These bands he considered to prove the existence of the maternal venous system. That they do exist between the villi and decidua is clear enough in those villi which are implanted into it, both in the plain surfaces of the decidua and into the decidual processes (Fig. 3 *a*), which dip deeply into the placenta in the later months of pregnancy; but that they exist to any great extent between the villi themselves can be proved to be *not* the case by any one who will carefully examine for himself; they do so occasionally, but

the appearance is much imitated by the laceration of the villi, the ruptured end tailing off very like that figured by Goodsir (Fig. 3 *b*). Besides, setting that aside and admitting that these bands are to be found everywhere, it is difficult to see how it proves the existence of the sinus-system. Where the villi pass between the meshes of the network of capillaries it is clear that each villus must be separated from the other villus by *two* layers of maternal blood-vessel wall, which of course do not adhere (Fig 4 i). Supposing, then, that a process is pushed laterally, there is still a covering of two layers of maternal blood-vessel wall between the tip of the lateral branch and the neighbouring villus (Fig. 4 ii). How, then, can any attachment take place between them, I mean arising necessarily out of their anatomy?

It is clearly then only the tips of the villi which implant themselves into the fœtal surface of the decidua serotina that can by this explanation of Goodsir's have the bands of maternal tissue passing from them. Indeed it is not possible, under Goodsir's mode of explanation, that bands should be found on a large number of the villi, for it is self-evident that, surrounded as every portion of the villus is according to his theory by a layer of maternal tissue, there would be no union of one wall of the sinus to the other except as an accidental occurrence.

I would submit, therefore, that if bands are to be found joining villus to villus, and tuft to tuft, it would be rather a proof that there was nothing between the villi of a maternal kind. I shall hereafter show how the processes of decidua arise and how the appearance related by Goodsir can be explained.

Again, I have in one instance removed a mature placenta from the uterus without the slightest effort, which was wholly devoid of any serotinal layer. When placed in water the villi floated out like red seaweed, without the slightest attachment to one another. Were there any bands from one secondary villus to another like Goodsir mentions, it would seem impossible that this free floating out could have occurred. So

it might be considered if we could find some subsequent date at the line or boundary of the sinuses.

Now, as before remarked, if the maternal sinus-system is not formed till a certain period after the formation of the villi, there must be a time when a portion of the base of each villus is not covered by it, therefore a membrane of the maternal vessels ought to be readily found, on one side of which blood will be present, and on the other towards the chorion none will be seen.

Dr. Priestley in his "Lectures on the Gravid Uterus" (p. 62) has described and figured minute vessels, passing in between the villi to a considerable degree, but not fully down to the chorion; they were still small and defined, not dilated as the commencement of sinuses. This occurred in a two months' ovum. He considered this (which had not been before noticed) as the intermediate stage of the formation of the placental sinuses.

But it is here important to note the difference between Dr. Priestley's account and that by Goodsir, because according to the former there is no interlacing of the network of capillaries till after the second month, while with Goodsir it begins at an earlier period. In any case the intermediate condition ought not to be difficult to recognise, if we examine the villi from their roots on the chorion to their extremities.

But this after many opportunities I have been unable to discover. I have carefully examined human ova from the age of a month up to the full period without any trace of any such appearance. I have dissected from the base of the villi, to the extremity and sideways from the edge of the indicated placenta, without finding anything to warrant us in supposing that any intermediate stage exists in the formation of the maternal portion of the placenta. If there be no such line or division, then it follows, either that the interlacing of villi and maternal capillary took place *ab initio*, *i. e.* coincident with the formation of the villi, as believed by Van der Kolk, or that there is no sinus-system at all. It may be difficult to say what conditions were those which led to the appearance described by Dr. Priestley, but a probable explanation was

furnished by two ova, aborted in the fifth or sixth week of pregnancy; in one an appearance closely similar was observed by me when viewed through the decidua, a network of blood-vessels seemed to dip in between the villi. The appearance was produced by blood showing between the closely applied villi, but which was readily washed away by water. In the other case the blood had the same appearance, but, being coagulated, gave an appearance exceedingly like that described by Dr. Priestley. However this may be, the condition is certainly not a constant one.

There are many facts which seem much to militate against the supposition that the sinus-system is complete at a very early period. The villi in early ova appear perfectly free from each other; when detached from the maternal surface, they float about in water as loosely as possible, certainly with no signs of any attachment.

Then, if we examine the inside of the decidua, where they were attached, we shall find it so unchanged that it seems nearly impossible to believe that it could have undergone the change implied by the sinus-system even in its incipient stage. The little opaque, effete, bulbous tips of the early villi which attach themselves to the surface of the decidua are readily found, quite on the surface of that membrane, with, perhaps, an overlapping layer of decidual cells, by which it is assisted to be moored (as it were) to the decidua. This layer has been regarded by Goodsir as evidence of existence of sinuses, considering it, indeed, the wall of a maternal blood-vessel. But I think careful examination will show that it is merely decidual cells which do not run down the villus. It is, indeed, drawn out into a band, particularly at a later period, but this is the result of the exuberant growth of the lateral branches of the villi, in a manner to be hereafter pointed out (p. 180).

There was one specimen which showed a condition militating very much against the commonly received opinion. It occurred in an ovum of about two months' development, which had been shed perfect, with all the decidual coverings, no opening existing in the part to which the future placenta was attached (see Appendix, p. 204). I opened the space between the chorion and decidua very carefully; not one drop of blood

or even a tint of blood was to be found within amongst the villi or their trunks. It might be thought the blood might have escaped, but blood surely must have been there in some quantity were it naturally there, the tendency being, when submerged in blood, for the cavity to admit rather than expel blood. Should it be suspected that it might have escaped through the veins, then it was found that the decidual vessels were full, but no signs of communication between these vessels and the cavity were observable.

Again, I found the appearance of the surface of the decidua to which the villi were attached was unchanged from that of the exterior, the openings of the uterine follicles being distinctly marked, though larger, of course, than those of the other decidua, nor was there any sign that the superficial capillary network had been changed so as to surround the villi. It might be thought that this was an exceptional case, but upon consideration for a moment it will be seen that one such fact is worth a large number to the contrary, because, as has already been pointed out, the chances for blood to enter a cavity or space like that of the placenta or this one just alluded to, are so great that it is a wonder that it is ever absent at all.

But this is really not an exceptional case; I have found other early ova in which no trace of blood has been found, and at a later period of pregnancy I shall hereafter show that total absence of blood is not so uncommon when the placenta is examined *in situ*, and without injection through the vessels.

Again, if we open the decidual cavity in which the ovum is lodged we shall find the villi running from chorion to the inner surface of the chamber ; but I have never been able to find any sign in any part which showed that one portion of a villus differed, excepting in size and vascularity, from the other part. If ova are taken at any period of pregnancy while the villi still are recognisable generally over the chorion surface, the same absence of difference is noticeable ; and even at more advanced periods, although the margin of the placenta is strongly defined, if the chorion beyond the margin be separated from the inner surface of the decidua reflexa, there cannot be found any distinct line of separation from the

active vascular villi and those which have become effete; all that can be clearly made out is that the chorion and decidua have become more closely and firmly united, and that the effete villi extend some distance away from the placenta from their attachment to the chorion (Pl. III, fig. 8).

Hence, if these observations are correct, it seems difficult to understand either that there is a transition state in the formation of the sinus-system before the second month of pregnancy, or any blood present between the villi up to the formation of the placenta proper; or, in other words, that there is a sinus-system complete or incomplete.

It will be, therefore, important to consider whether after this period of pregnancy there be any evidence of the existence of this system. If we at any time carefully open the margin of the placenta, whether *in sitû* or after detachment in natural labour, and with the utmost circumspection lift up the decidual layers from the chorion, we shall cause the villi to be somewhat straightened, so that if any membrane, however delicate, exists, it would readily be detected.

This I have done in every stage of pregnancy in numerous specimens, but have been unable to detect any structure whatever. I have separated it from within to without the margin, and from without to within, without success; and yet, if a maternal element existed, there must be somewhere near the margin an external limit of the sinuses; as also, if it extended only partly down the villi, there should be a limit somewhere between their extremities and the base. But nowhere can such a limit to the maternal element be made out. Nor has it, I believe, been ever noticed by authors.

Up to at least the seventh month it is not difficult to find outside the placental margin the non-vascular effete villi; their tips are attached very firmly to the decidua, at the inside of the base of the decidua reflexa. They radiate from the margin to a considerable distance (fig 8), and doubtless serve to hold the villi on to the decidua with considerable firmness. But if one gradually lifts away the decidua while external to the margin, and looks towards the interior of the placenta, there is no separation of any kind by any membrane, so that

DESCRIPTION OF PLATE III.

Fig. 4. Appearance of inside and outside of decidua reflexa at base; *a*, angle of reflexion.

Fig. 5. Cup-like depressions of the attachment of bulbous ends of villi.

Fig. 6. Ends of effete villi at and beyond margin of placenta.

Fig. 7. Section of uterine follicle.

Fig. 8. Margin of placenta. Chorion lifted up, showing effete and active villi intermixed, with recurrent branches.

Fig. 4.

Fig. 5

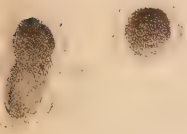
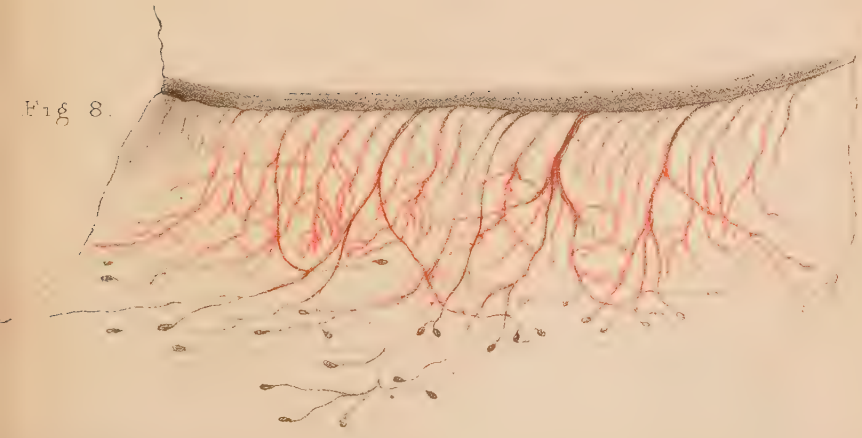


Fig 7.

Fig 6

Fig 8.



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it may be said the intervillal space (placental cavity) is continuous with the space intervening between chorion and inside of decidua reflexa all round the ovum.

In any case of pregnancy, supposing there was a placental cavity formed from the maternal vascular system, as Hunter maintains, and that this outer limit, supposing it also to exist, were lacerated, the blood must necessarily be poured out between ovum and decidua; and then, supposing the decidua lacerated, it would be difficult to understand how the patient should not succumb to hæmorrhage. But if there was no blood, but simply a transparent fluid, then the loss of a small portion daily is but of moderate moment; and, indeed, this would serve to explain the discharge of fluid which sometimes takes place during pregnancy, where the amnial membrane has not been ruptured, the occurrence of which fluid has been hitherto difficult to explain.

In relation to this outermost membrane of a sinus-system there is an assertion of some anatomists, as Van der Kolk, &c., which requires notice, namely, that the lobules are separated by septa from one another, and they instance in proof that injections thrown into the cavity of the placenta do not run everywhere, but are restricted to certain portions. Now, although I must, as before mentioned, refuse evidence of this kind as a proof, still I may answer that the like result has not attended my experiments; I have always invariably found that the injected fluid permeates all the spaces between the villi equally in all directions. This experiment I have tried very many times, always with the same effect; there was no evidence of any limit in any way.

From the consideration of these facts I feel warranted in asserting that from the beginning to the end of pregnancy there is no evidence of the sinus-system being in a *transition* state. It must either exist *ab initio* or not at all.

The discussion of the latter alternative will now occupy our attention.

III. *That from dissections early or late in pregnancy there is no evidence of the existence of a sinus-system.*— Although

the placenta is generally said to be distinctly formed at about the end of the second month of pregnancy, yet in reality there is no definite period at which it can be said to be formed, because if we carefully examine the ovum at a much earlier period we notice the villi at a particular part are larger than the rest, so much so that even a month after conception it may be known at what spot the future placenta will appear. From that time till the completion of full term careful observation has failed to show me any *essential* difference in its structure, excepting in the addition of the decidual processes. It will also be noticed that the total amount of original villi included in this change is not so great as one might suppose from our inspection of a fully grown placenta.

The area of the placenta seems, from numerous observations, to be determined by the extent of the allantois, although I have found one ovum where the vessels of the allantois were *only* to be noticed on that part of the ovum which had *no* villi.

It is a matter yet of uncertain explanation why the allantoic aspect of the ovum should nearly always be applied to the surface of the uterus on which it rests; but though it is not a part of the present paper to inquire into this subject, it may be remarked that possibly abnormalities in the adaptation of the allantois to the portions of chorion well covered by villi, and in the apposition of that facet of the ovum to the uterus, may be the source of some abortions.

Now, if we should find instances in which no blood is present amongst the villi, or, in other words, that the interior of the placenta does not furnish a trace of blood after the most careful examination, it appears to me that such evidence would be conclusive against the existence of the sinus-system; because, for the reasons I have already pointed out, one such fact is worth a hundred arguments to the contrary. For I may again repeat, when we consider the great number of chances there are against any cavity similar to the placenta being expelled from the uterus by compressive force, having one side porous, it would seem almost impossible for blood *not* to enter and not to be diffused by capillary action and

the compression of the uterus throughout the whole intervillal space. And, again, when we consider the tenderness of the walls of the dilated maternal vessels of the decidua and their liability to be ruptured under uterine force, under states of hyperæmia, shocks, &c., it is a wonder that the placenta is ever expelled without containing blood, and this would explain why it is so commonly the case that the intervillal space contains blood after expulsion.

I have already alluded to the comparative absence of blood in those placentæ which are the most perfectly free from openings in their decidua. If in objection to this it is remarked that the blood might have been expressed during expulsion, then it ought to be borne in mind how very unlikely it is that that blood, once within, could be expelled so fully. But a much more complete answer to the objection would be given if it could be shown that when the placenta is examined *in sitû* no blood can be found in the intervillal space. If to this it were also objected that the blood had flowed from the sinus-sytem into the veins after death, the answer would seem sufficient that it would be next to impossible that blood should flow from these sinuses (if they exist), and yet remain in every other vein of the uterus, which is notably the case.

And even if we were to admit that no sinus-system existed, yet, considering the tender nature of the vascular walls surrounding the cavity, as I assert, it should not be surprising if blood were occasionally to appear in the intervillal space whilst still attached to the uterus, after violent concussions, in cases of hæmorrhagic tendency, or in the throes of death, or in the efforts of labour.

And this brings me to the consideration of an argument used by those who have supported the sinus-system, namely, that it is impossible to conceive the action of endosmosis to go on in the placenta at the extreme distance from the maternal surface, so that they argue the villi which were near the chorion would be useless. But the worthlessness of this argument is apparent at once when we consider that when the blood has once entered among the villi its position differs

exceedingly little from that of a fluid placed independently of the circulation in the same position. The small size of the supplying arteries (curling) would always limit to a great extent the freedom of circulation, when it entered the intra-villal space. So that although a slight movement were obtained, still, it would be so sluggish that the principal change between fœtus, and mother would be carried on in the same manner as it would upon the supposition of the absence of the sinus-system. Dr. Arthur Farre, in the article "Uterus" ('Todd's Encyclopædia Anat. and Phys.'), has pointed this out, although he supports the Hunterian theory.*

If the placenta be opened *in situ* it will be seen that even then the space between the villi is much less than the calibre of the villi. Indeed, there is every reason to suppose that the villi are in absolute contact, so that the only true vacancies between them are in the triangular space between each neighbouring villi. This narrow space, doubtless, facilitates the diffusion of the fluids by capillary attraction. But in any case the argument which has been adduced against the uselessness of the villi next the chorion is to an almost equal extent applicable to the sinus-system. Again, those who have found a difficulty in the distance to which endosmosis acts have overlooked the fact that in the placenta in extra-uterine fœtation there is no union of maternal and fœtal elements in the manner supposed in a sinus-system. The villi are merely applied to the surface of the mucous membrane of the Fallopian tube. This, I suppose, is now well recognised. For my own share in the description of the actual state of the arrangement I have shown, in 'Guy's Hospital Reports' (1860, p. 272), that the ciliated

* I may here add that the peristaltic action of the uterus which has been known to exist at the latter months of pregnancy extends also to the whole of the period of pregnancy during which we have the power of examining the uterus, that is to say, from the third month. This I have made clear to myself by hundreds of examinations. This movement is recognised by its becoming alternately relaxed and contracted at intervals varying from ten to thirty minutes. ('Obstet. Trans.,' Lond., 1871.) The value of this is, no doubt, great in causing a circulation of the fluid which doubtless exists either as blood or serum in the intervillal space.

columnar epithelium can be detected on the surface of the mucous membrane in Fallopian pregnancy, while the villi adhere by a small amount of lymph to the surface, the ciliated epithelium occupying the space between them, the mucous membrane being unchanged. I have also shown that the membrane supposed by Dr. R. Lee to be an ovular structure in a specimen of extra-uterine fœtation in Guy's Hospital Museum was nothing more than fibrillated blood.

Now, in extra-uterine conception the fœtus frequently grows to the full size of intra-uterine pregnancy, and therefore it is plainly evident that the sinus-system in this instance is not an absolute necessity, and therefore that endosmotic action can go on through the whole depth of the placenta consistently with the perfect nourishment of the fœtus. Hence (to repeat), if we admit that even with the sinus-system the difficulty of the exchange by endosmosis is nearly as great as without it, and that as a matter of fact in extra-uterine fœtation exchange by endosmosis does actually go on without detriment, we shall have no argument *à priori* in favour of the necessity of a sinus-system.

But in truth the distance at which endosmosis is really obliged to exert its influence is not so great as here supposed, because the processes of decidua (as will hereafter be shown) bring down towards the chorion the vessels contained in them to a much nearer point than the full thickness of the placenta.

We shall now be in a position to inquire what proof have we of the existence of the sinus-system *ab initio*. It will, of course, be admitted that if there always were a complete dovetailing of the maternal with the fœtal vascular system, we should upon all occasions find blood amongst the villi from early to completed pregnancy. And it will by all, I suppose, be also granted that if in any case blood be not found in that position, in not the slightest trace, we may conclude that it never had been there. For, as has been above advanced, it would seem an impossibility to suppose that had blood been amongst the villi, and after death to have emptied itself so completely as to leave no trace behind whatever. To say the least, there is infinitely more difficulty in

understanding how the intra-placental space should, having once contained blood, have become quite empty, absolutely so, than to understand that, surrounded on all sides by blood, it should, after the process of delivery, or after careless handling, or after death accompanied by venous engorgement, contain more or less blood. But is there really blood in this intra-placental space while the placenta is yet attached to the uterine wall?

In four dissections made on uteri pregnant from the fourth to sixth month I found two wholly free from blood (see Appendix, p. 190, et seq.).

In those two in which I found some the quantity was small. In one of them it was scarcely a trace, in the other rather more. The cause of the blood in these two will be explained further on. But in neither did the quantity at all approach to such as one is accustomed to see in those placentæ which are expelled by the natural action of the uterus.

The plan adopted in dissecting these specimens was by carefully opening the uterus from the os till the placental site was made out; the direction of the opening was then carried laterally, so as to enable me to clearly see and readily reach the whole of the amnial surface of the placenta, without touching its margin.

The amnion and chorion were then carefully divided at a part free from the vessels. This was not an easy matter, the blood-vessels (villi) being so numerous. Another difficulty also arose from the readiness with which the villi within are wounded when the chorion is divided, for some of the villi adhere to the placental aspect of the membrane, and others are in so close a relation with it that it is difficult to avoid them. However, by proper precautions these obstacles can be overcome, and the result was I found that *two out of four had no trace of blood amongst the villi.*

In one of the specimens without blood a very diffusible injection was used through the blood-vessels of the uterus of fine size and Prussian blue. Now, although at the outset of this paper I asserted that if injection be found in the inter-

villal space it fails to prove the existence of ready-made openings, yet the non-entry of injection is by no means without considerable value as evidence of their absence. In this case in only one place did any injection enter, and this was diffused indiscriminately in indefinite portions amongst the villi—not a trace of its being limited in any portion, nor of its taking any definite form.

In one of the specimens in which blood was present the quantity was so small, and the fluid so scantily supplied with blood-corpuscles, that not more than half a drachm could have been diffused altogether, and when water was injected into the intervillal space through one hole, and allowed to flow out of another at some distance, it came out scarcely tinged. In examining the placenta throughout, at one spot a small clot of blood was found extravasated amongst the villi, from which it was clear the small quantity of blood generally diffused had originated.

But, we may fairly ask, why should a clot of blood be found isolated amongst the villi if maternal blood were a normal element of the active living placenta? It appears to me an impossibility that a clot should be found in one little spot and only a few drops altogether in the other part, and yet the whole space had been preoccupied by blood.

In the second case where blood was found within, upon examining the placenta throughout, a considerable patch of extravasated blood amongst the villi was found in one spot, but whether this had been derived from a rupture of the villi themselves or of the maternal vessels it was difficult to ascertain, though, from the effects of injection through the funic vessels, it appeared that there had been a rupture of the villi.

So much for the evidence yielded by dissection of placentæ *in sitû*.

But allusion has been already made to the corroborative evidence given by placentæ which have been expelled by uterine contractions. If they are carefully examined it will be found that the amount of decidual tissue on their uterine surfaces varies considerably. In some it is so perfect that

scarcely a fragment of villus is exposed, while in some nearly half the villi are denuded.

These openings, therefore, in a proportionate degree, permit egress and ingress of blood. Now, as far as my observations have extended, namely, to about forty placentæ carefully examined, I have found the larger quantity of blood in those placentæ which have the more numerous apertures, whilst in those where there have been few, perhaps only one, the blood contained is much less, and in one or two specimens scarcely a trace, and water injected through an artificial aperture has flowed from another nearly colourless.

Would not the contrary be the case if the intervillal space were originally filled with blood?

But we may also derive much help in solving the difficult problem by observing the various diseases of the placenta (see Appendix 202). Take the so-called "fatty degeneration of the placenta" where it is expelled of a pale yellow colour. Here we find the capillaries of the villi empty of blood, the result of some change either primarily in them or in the fœtus. At any rate the villus is not pink, as it is in health. If there be a maternal element filled with blood, should we not expect to find it still remaining amongst the villi? But instead of this there is not a trace. The mass is of a pale yellow tint throughout, and this without blood having escaped from it to cause its blanching (see Appendix).

Again, look at the "apoplectic" ovum, or mole, its placenta full of clots in all directions. Why should we find death of the fœtus to arise from what we may call embolia in a cavity where its presence is normal? I do not mean to say such could not be the case, but is it not much more easy to comprehend that local coagulation should be owing to the entrance of blood into an abnormal position, than to understand how such a change could take place if blood were normally so situated?

Under whatever view we look upon the structure of the placenta, we must all admit that the tortuousness and thus increased length of the curling arteries is of great service in preventing sudden pressure of blood on the intervillal space;

but there is another condition which materially adds in extreme cases to the prevention of sudden and powerful accession of force in that direction, namely, the unsupported condition of the blood-vessels at the line of separation between the placental decidua and the uterus. This, of course, it will be remembered, is on the proximate side of the curling arteries, and therefore the blood-vessels are liable at this point to give way before the impulse has reached the curling arteries. Practically this is known to obstetricians as a cause of "accidental hæmorrhage," and is largely instrumental in more or less completely shutting off the fœtus from its nourishment, causing its death or enfeeblement.

For what reason, it may be asked, would all this provision be made to prevent unusual impulse of blood acting on the intervillal space, if that space were filled already by blood, according to the sinus-system theory?

But if it be answered that even in that case it would be very useful, then it must be rejoined that in a much greater degree it will be serviceable under the supposition that no blood naturally is present in that position.

IV. *Description of the anatomy of the placenta and its mode of growth, based upon dissections.* Having thus endeavoured to show that there is no stage of the placental growth at which the sinus-system can be detected in an intermediate condition, and, further, that there is no evidence to show that it existed *ab initio*, but that direct evidence and inference from various conditions tend all to show its absence, I shall now proceed to explain my views as to the structure of the placenta, as far as I have been able to decypher this difficult structure.

And first I may say that if we endeavour to unravel its structure from the dissection of the mature organ we shall be very liable to fall into error, for at the full period of pregnancy the various parts have assumed totally different relative positions as well as proportions. Therefore, although it is easy to say, after we have followed its development upward gradatim to what parts certain portions belong, yet if we,

in our endeavours to make out its structure, begin at the mature state, we shall find such difficulties as are almost if not quite insuperable, the more especially because we find an enormous difference in the relative proportions of the various parts at that period in different placentæ, as just stated.

For these reasons it is necessary that we go back to the time when the organ is in its simplest state, and then watch the changes as they proceed.

In a general way we shall find it sufficient to take the placenta at the fourth month, for although the changes which become afterwards very marked may be then existing, yet they will not be so advanced as to interfere with the recognition of the true arrangement and how the changes take place.

Still, we shall find it best to take it at a very early date, say at a month and a half advanced, because, although the placenta is said not to be fully formed till a later period, we cannot deny that, although the chorion-villi generally surround the whole chorion surface, yet in that part beneath which the fœtal vessels ramify, the villi are larger and longer, over this defined area, than at any other part, and the future placenta is distinctly indicated even at a month's advance from conception.

Now, at this early period the whole arrangement is really very simple, as far as I am able to make out. Within the now closed-in cup formed by the growth of the decidua-cells the ovum is placed surrounded with its villi. The ends of these villi adhere to the inner surface of the decidual cup, to a certain degree all over, but particularly and more firmly the base of the cup on which the ovum rests. The end of each villus was originally slightly bulbous; this appearance it still retains, but it becomes opaque, and thus it is readily recognised at a very late period of pregnancy.

This dilatation is attached to the inner surface of the uterus by the assistance of a slight quantity of plastic material, but principally by the exuberant growth of the cells of the inner surface of the mucous membrane (now decidua) which overlap and envelope it sufficiently to retain, but not so much so

as to render it invisible without dissection. This extremity of the villus, from its tip down to the last branch, becomes more or less effete, serving only to fix the ovum to the uterine wall. This has been also described by many previous authors. Now, on this point Goodsir has made some special remarks, and lays much value upon his description of the minute anatomy of this part, as tending very conclusively in his opinion to prove the truth of Hunter's theory.

He represents the layer of cells which I have just now mentioned as enveloping the bulbous tips of the villi as being derived from the maternal capillaries, so that they not only cover these extremities but invest the whole villus and its branches, and of necessity the chorion itself from which they spring.

But there are two facts which appear to militate very strongly against his description.

1st. If we examine successively, from early pregnancy to the fourth month at least, the inner surface of the cup of the decidua, in which the ovum rests and to which the villi are attached, we shall find that its appearance is the same as on the *outside*, to which there is no such attachment. That is to say, there are the same enlarged oval openings (the follicular openings, altered in shape only by the decidual growth) on the *outside* as on the inside of the decidual cup; and if the villi are carefully drawn off the aspect of both is so nearly alike that it forms a very clear evidence against the old notion that the ovum entered the uterus from behind the mucous membrane, and pushing it before it, and also compels us to ask, how is it that, if the whole capillary network has been converted into the sinus-system, so little change has taken place in the surface that no difference is noticeable? Nor can any membrane be noticed running across the follicular openings. These openings run the whole depth of the thickened decidua obliquely, and look like cavities, and when filled with blood, might readily be, and probably have been, mistaken for vascular sinuses (Pl. III, fig. 4).

The suggestion put forward by some, that the villi originally enter these follicular openings, is not borne out by my

observations, for on no occasion have I detected one so entering in a case of early pregnancy; but later on, when the lateral branches of the villi develope themselves with great vigour, they doubtless do press into them, and thus in one manner lead to the appearance described by Reid, of the passage of the villi into the uterine sinuses.

May the opinion be hazarded that these follicles perform the important function of pouring forth fluid into the intra-villal space for absorption by the villi?

When the placenta is advanced to the fourth or fifth month their appearance readily misleads, and as the vessels of the mucous membrane ramify around these openings and along their canals (Pl. III, fig. 7), it is easy to understand that should these vessels become dilated they would encroach on their canals; and that if these dilatations gave way they would cause great difficulty (as they, doubtless, have done) as to determining whether large openings of the vascular system did not naturally exist into the intra-placental space.

If, then these openings remain without any membrane across them, without any blood within them, and the branches of the villi are found in the intermediate space, merely attached to the inner surface of the lining membrane of the uterus, we have strong evidence against the sinus-system, and a condition very readily explained without the necessity of so elaborate a theory as that required by that idea.

2nd. If the outer membrane or layer of cells which covers the villi is carefully examined it will, I think, be seen that there is no difference between it and that on the villi of an extra-uterine fœtation. That no sinus-system exists in the latter mode of fœtation has been already pointed out.

If this be so, then any argument founded on the contrary assumption will be without point and worthless, and the division of the coats of the villi into the maternal, decidual, and fœtal, are without foundation in fact, and this is not a difficult matter for any observer to prove to himself when any fresh specimen of extra-uterine fœtation presented itself.

But if we carefully read through Goodsir's account of the placenta, it appears to me that he was not so much endeavour-

ing to elucidate the general structure of the organ, as to combine the cell theory of nutrition with the Hunterian doctrine of its anatomy. He assumes, apparently, that theory as being the true one, and upon it builds up his theory of nutrition for the fœtus. It is true he has carefully examined the microscopical structure, and made it coincide with the opinion of Hunter, and then combined with these the cell theory of nutrition, but from the tenor of his paper I think he has not occupied himself so much to prove or disprove Hunter's opinion as to state that opinion and combine it. Hence, although his opinions might be quoted as to the microscopic anatomy, I think they cannot be brought forward so much as corroborating the existence of the sinus-system as assenting to it.

The formation of the placenta gradually proceeds in this manner. When the size of the ovum has exceeded that of the area by which it is attached to the uterine wall (although this area expands simultaneously with it) the decidua reflexa, which becomes nearly consolidated with the chorion except on that area, presses on the decidua uterina and ultimately becomes closely adherent to it. But the angle of reflexion is formed, not merely by the two membranes, but also by the most thickened portion of the decidua, namely, the base of the decidua reflexa. Thus it is that the outer margin of the area on which the ovum rests becomes the most solid portion of all, and the process of separation which gradually is proceeding throughout pregnancy between the decidua and uterus is here but slightly marked, so that this ring is, as is well known, the most solid and firmly attached of any portion of the placenta, serving, doubtless, largely to retain the ovum and its placenta *in situ* under concussions and violent actions of the body.

At this part also the adhesion of the chorion to the decidua is more firm than elsewhere, for it will be noticed on careful dissection that just beyond the vascular villi of the placenta proper are to be found old effete villi, of more than an inch long, branching, but not like the vascular kinds, and their branches interlace. They are all firmly attached to

the decidua, and serve much to hold the two membranes together. They run always in a direction away from the placenta, so that the decidua must have expanded more than this part of the chorion grew, whether as the consequence of its own growth or of the stretching produced by the growth of the ovum is not very certain. In any case it assists in the retention of the chorion to the surface of the decidua about the point of reflexion. At this point we ought, as I have before remarked, to find the limit of the sinus-system, which, after numerous dissections on placentæ, both *in sitû* and recently expelled, I have failed to observe.

This margin it is which prevents by its firm attachment any blood which may have entered the intervillal space from passing between chorion and decidua reflexa.

We will now suppose that by the means just before described the area of the placenta has gradually been clearly defined, and that the villi are vigorously growing. We thus have a placenta of simple construction :—1st, A membrane (chorion) on the inner side ; 2nd, the mucous membrane of the uterus (decidua serotina) on the outer ; and, 3rdly, villi passing between these, springing from the chorion, branching as they pass to the decidua, into which their extremities become rather firmly planted. Amongst these villi most probably a small quantity of serous fluid exists to assist osmosis.

As pregnancy advances the vessels of the mucous membrane of the uterus, at the seat of the placenta, increase in size, becoming more or less varicose, showing their natural tortuosity very markedly. This is especially noticeable on the external or uterine aspect of the placental decidua, which can be exposed by careful peeling it off the line of future separation (see Appendix, p. 197).

This placental decidua from the third to the fifth month of pregnancy is of considerable thickness (about one third of an inch), but as pregnancy advances the more the vessels enlarge and the decidual elements become relatively less. But it must be admitted that at this time, and at all periods

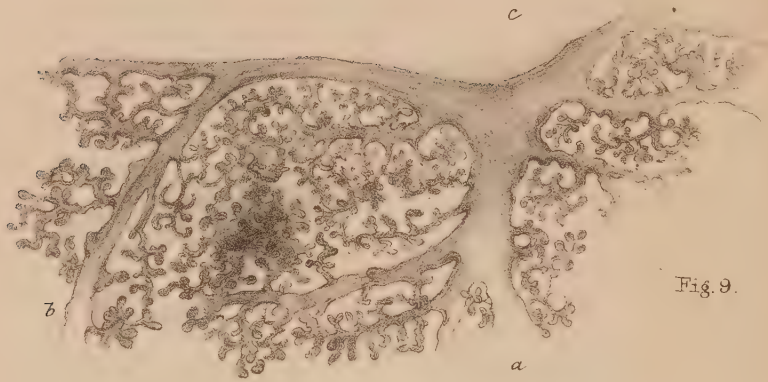
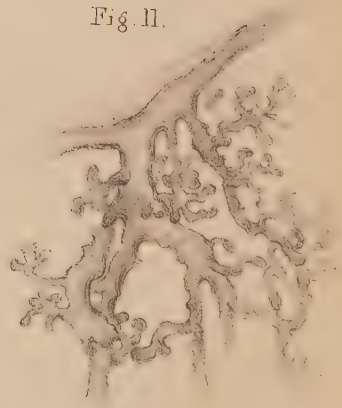


Fig. 9.

Fig. 10.

Fig. 11.



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DESCRIPTION OF PLATE IV.

Fig. 9. *a*, Main stem of villi attached to *c*, serotina; *b*, lateral terminal branch recurrent.

Fig. 10. Recurrent branches.

Fig. 11. Ditto.

of pregnancy, the quantity of blood flowing through these vessels of the placental decidua is amply sufficient for the wants of the fœtus, if we first of all recognise the possibility of the nourishment being carried on without the necessity of maternal blood in the intervillal space. After the fourth month another arrangement takes place, which counteracts the disadvantage of the increasing depth of the placenta.

The growth of the villi, always vigorous, becomes still more so as the placenta advances to maturity, but the main increase of the bulk of the placenta takes place, not so much from the elongation of the original trunks of the villi, as from the great and multitudinous development of the lateral branches. The number of the original trunks is not so great as one might be led to imagine from the bulk of the organ, but the secondary branches are very numerous, some extending somewhat parallel to the main trunks, but principally in a lateral direction. These lateral branches, which spring from the main stem close to the uterine surface, sometimes run along the surface adherent to it for some distance; and then the branches of this portion, because they cannot proceed further, by reason of the opposition from neighbouring branches, direct their course back towards the chorion, and, indeed, I have been surprised to find them extend half way towards that membrane (Pl. IV, figs. 9, 10, 11). So that when the placenta is detached from the uterus, the passage of these vessels full of blood along the inner side of the placental decidua gives an appearance as if they were blood-vessels of the decidua rather than of the fœtus, and, as the branches passing backwards to the chorion, might readily give rise to the supposition that the maternal capillaries themselves had produced villi.

This fact adds much to the difficulty in recognising a sinus-system, because although I freely admit that it is a possibility, yet this pushing backward is a much greater change than the mere lateral branching is. . The ease with which it can be explained without this theory is thus very simple. At the same time the fact cannot stand as a distinct objection to the sinus-system.

This exuberant growth of the villi it is which gives rise to

an appearance which has been not hitherto rightly comprehended, I mean to the mode of the formation of the decidual processes.

If a mature placenta be carefully examined it will readily be noticed that in certain parts the villi do not elongate so much as at others (of which more hereafter). The effect of the general growth is of course, to push the chorion further from the uterus; if, therefore, the elongation of some villi does not correspond to that of the lateral increase, it is obvious that either the chorion itself must be restrained or that the decidua at those positions would be drawn away from the uterine surface. Principally it is this latter effect which occurs, although, doubtless, some slight influence is felt on the chorion. Thus it is that gradually, in certain points and lines, the placental decidua is drawn off the uterus, and the so-called decidual processes are formed (Pl. V, figs. 12, 13). It will be seen that it is not by the growing of the processes towards the chorion, as would seem to be implied by the writings of authors, it is the exuberant growth of the lateral branches exceeding the linear growth of the original trunks that produces the effects just described.

Included in this retracted portion are sinuses formerly the capillaries, some of them as large as goose-quills. Some of these dilatations abut on the villi, and so far are in actual contact with them; and these villi, in the vigour of their growth, doubtless here, as on the other portions of the decidual surface, press in upon these dilatations, and thus give rise to the appearance that they have penetrated the sinuses. But the effect of the retention of these portions of the decidua is to keep the maternal blood in the near neighbourhood of the villi, thus facilitating the supply of blood for osmosis. This fact half answers the objection which some have made to the absence of the sinus-system, as to the distance some of the villi are removed from the uterus at full term of pregnancy.

But I have now to point out at what parts this retraction takes place, in other words, at what points the linear growth of the main stems of the villi are less vigorous.

Before I can make this clear I must allude to a feature,

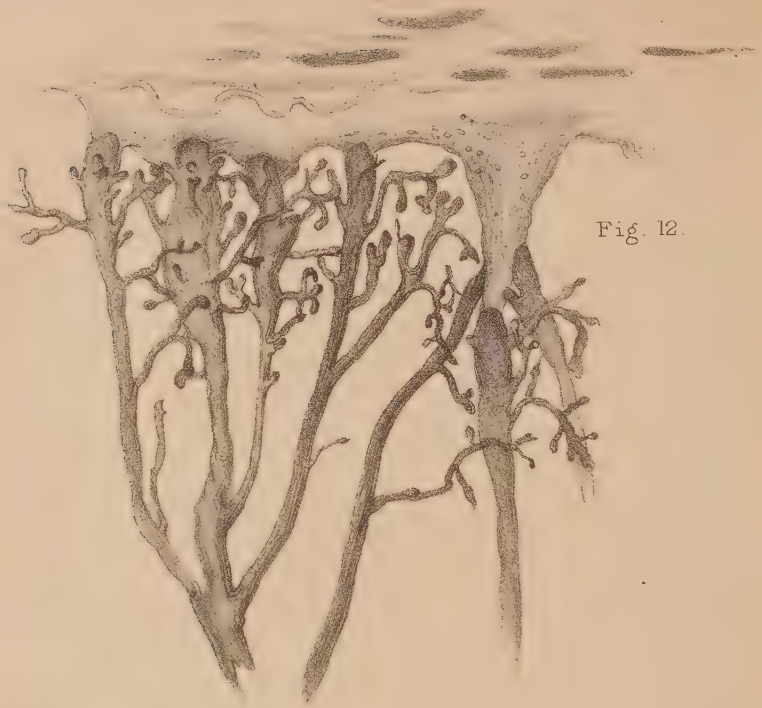
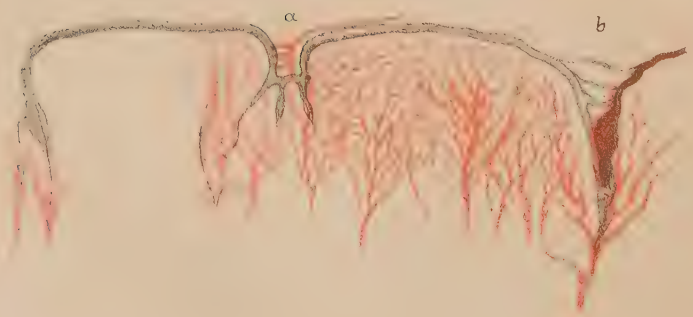


Fig. 12.

Fig. 13



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DESCRIPTION OF PLATE V.

Fig. 12. Section of uterus, decidua, and villi of an early ovum, showing the adhesion of the villi to the mucous membrane of uterus, and commencement of the formation of decidual processes, some of the lateral branches removed.

Fig. 13. Section of a lobule.

a. Depression or process where curling artery is situated.

b. Where venous sinus is placed.

already noticed by most authors, to be observed in the composition of the placenta.

If a placenta at almost any period of pregnancy be laid on its amnial surface, the uterine aspect will be seen to be made up of a number of lobules, which generally are hexagonal, but towards the circumference, where they less encroach on each other, they are more or less circular. In the mature placenta they are about one inch in diameter. They may have the deep sulci between them or not. Generally, as before mentioned, the sulci are bridged over, so that the line of division is more or less obliterated. However, though it may be difficult to distinguish the boundary, it is nearly always easy to make out the centre, for this is marked by the curling artery, of which more will be said hereafter. Now, it is at the circumference of each lobule that the less vigorous growth of the villi may be observed most particularly, but it is also to be noticed at the centre where the curling artery appears to enter, (Pl. V, fig. 13, *a* and *b*). Generally by this means the artery is retained, so that in some very large and coarsely grown placentæ (for their size and thickness vary much) the decidua at this point is held down, including the artery, thus giving rise to the appearance that this vessel opened right into the cavity of the placenta. And this appearance is still more likely thus to deceive, for the curling artery at its last curl passes within the inmost layer of the lining membrane of the uterus (decidua serotina), and then ramifies over the inner surface of the decidua (Pl. VI, figs. 14, and Pl. VII, 16 I, II, III), against which I have already mentioned the villi press and often adhere. This curling artery and its branches, in ramifying over the inner surface, is slightly covered, but at this point very slightly so; though around it at this last curl the decidua is generally thickened. At this point it is that the decidua is held down by the villi, which seems, for some reason not apparent, less vigorous in growth, so as to form a projection towards the placenta. The decidual process, instead of being of a linear form, as elsewhere, is here funnel-shaped and sometimes a short tube, including in it the curling artery, which does not always occupy the centre, but in its gyrations

is found on one side or the other on the villi, while on the other side the two layers of the decidua forming the funnel are in contact, sometimes even adherent.

The wall of the artery, as it abuts on the villi, is so delicate that, unless care be used, it will break down, so that blood escapes among the villi, and if the blood in the vessel be gently washed away the villi may be readily seen through.

Thus, it will not be difficult to perceive how it was that the supposition arose that the blood passed from this point (called the open mouths) straight into the intervillal space supposed to contain maternal vascular elements.

To employ probes, bristles, or even a jet of water with any force, is to ensure the rupture of this delicate wall. It is only by careful dissections under water, viewed by a lens, that the real structure can be made out. Therefore it was that at the outset I stated that results of injections could not be relied upon as a crucial test.

The next position where the decidual processes are to be found is at the circumference of each lobule (fig. 13 *b*), where one touches its neighbour. There the villi seem to have elongated less than in the space which intervenes between it and the curling artery, and the remarks which were made on this vessel will apply to the vessels found in these processes of the circumference, but they are more liable to variation in size, and they do not run the markedly tortuous course of the artery, being in all probability the veins of the return current of these arteries (Schroeder van der Kolk describes them as veins)—(Pl. II, figs. 1 and 2), and their innermost wall is in contact with the villi, where frequently they dilate to a quarter of an inch in diameter. If, then, this delicate membrane is broken forcibly through, blood readily escapes within the placenta, or if injection be employed it is extravasated in the same position.

That this membrane can be seen intervening between the eye and the villi is to me quite a certainty, and can be seen without difficulty if great care be taken to open these dilatations and water be poured very gently so as to float away the blood. Otherwise here, as in the case of the last bend of the

Fig 14.

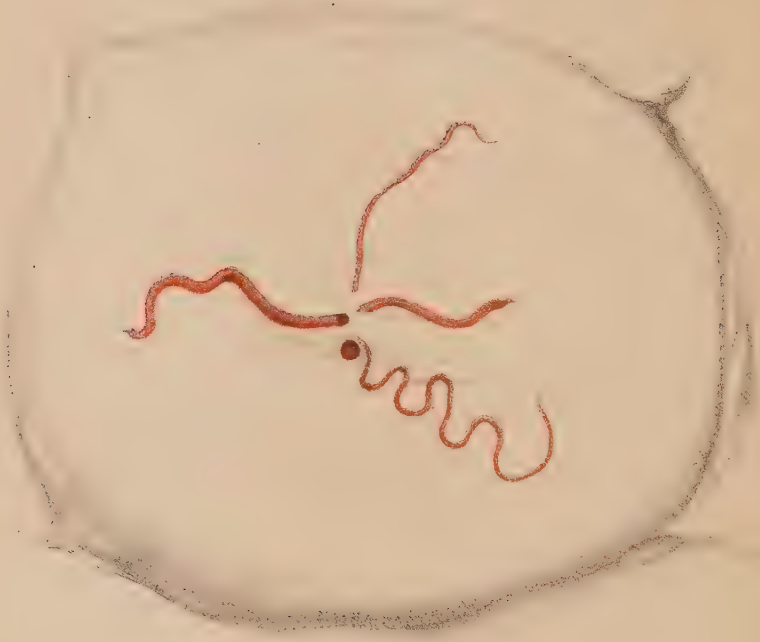

Fig 15.

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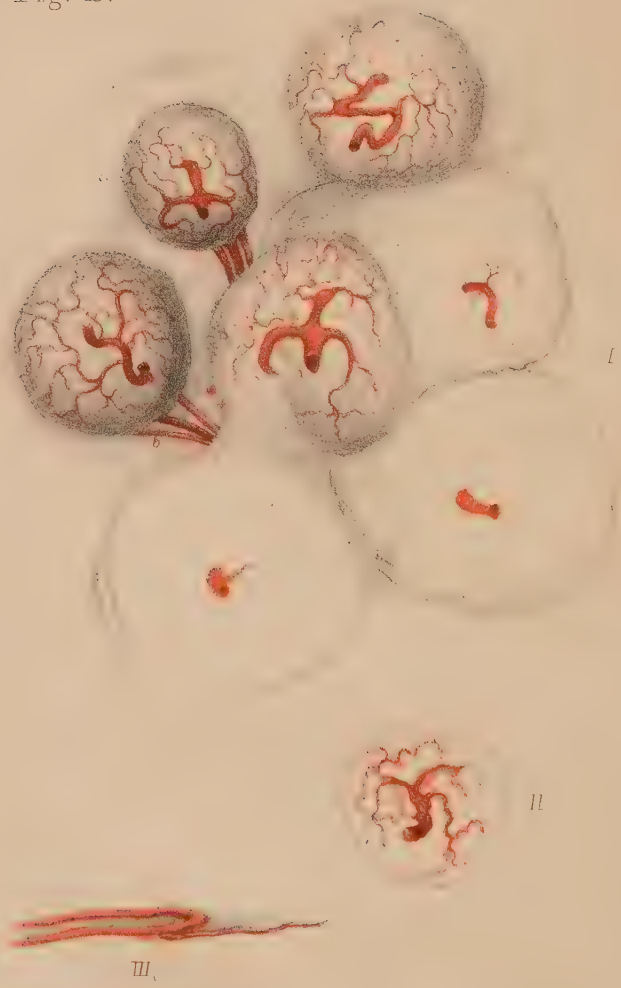
DESCRIPTION OF PLATE VI.

Fig. 14. External view of a lobule, with entry and branching of curling artery.

Fig. 15. Curling artery with branch on ovular aspect.

Fig. 16.



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DESCRIPTION OF PLATE VII.

Fig. 16 I. Margin of a placenta with detached lobules, *a*, *a*. Each has a curling artery, *c*, with ramifications over it on the uterine side. Three funic vessels proceed to the fœtal aspect, *b*. Fluid injected into each lobule passes by the side of these vessels, between the serotina and chorion.

II. Separate lobule.

III. Curling artery after last curling when it has reached the inner surface of serotina, passes along its inner aspect to ramify there.

curling artery, if this membrane be unobserved or broken down, the appearance is exactly like that of "open mouths," so frequently described by Hunter and his followers, and which really appear of the size of a "goose-quill" in many parts.

It may also be constantly noticed that the curling artery does not end at the point of its supposed entry into the placenta.

If the villi of a placenta, say at the sixth or seventh month of pregnancy, be removed carefully, and a portion of placental decidua held up to the light, it will readily be observed that the curling artery ramifies from the centre of the lobule, so freely that, comparing their calibres, it certainly must have expended itself in ramifying over the inner surface of the lobule; in other words, the branches seem sufficiently numerous and large enough to carry off its blood without the further demand of a sinus-system in the intervillal space (Pl. VI, figs. 14, and Pl. VII, 16, 11).

In one injection I made in the pregnant uterus with glycerine and Prussian blue the injection could readily be traced ramifying on the inside of the placental decidua, while in a neighbouring part the same injection had burst through and had become extravasated in the intervillal space.

Besides the two positions of the decidual processes which have been described as dependent on the lobules, there are other places where they occur, but not regularly, either in position or in extent. In some, indeed in most, placentæ, irregular deep depressions are found most frequently following a line between the lobules, but never, I think, through one. These sulci, caused by the detention of this portion of the decidual process, are in general partly obliterated by layers of new cell-tissue, which bridge over the depressions in three or four layers, formed evidently at different intervals. Should blood happen to pass inside these layers, which is frequently the case, the appearance is very like that of a sinus; careful examination, however soon, reveals the true nature of the appearance (Pl. V, fig. 13 *b*). However, inasmuch

as these decidual processes draw in these capillaries which are naturally in it, and as these vessels, as in the other decidual process, become dilated, these dilatations and their abutment on the villi, will cause appearances even more marked than, but similar to, those already described.

There is a form of the human placenta not infrequently to be observed which appears to confirm the above points to a remarkable degree. In fig. 16 I, taken from a placenta in a twin gestation, will be noticed a number of the lobules above described separate from the main mass of the placenta, in some cases nearly three quarters of an inch. This appearance may be noticed in a minor degree in many placentæ, but in the one from which this drawing was made there were many all round—so many minute separate cotyledons.

The drawing is taken from the uterine surface. In the centre of each—the "curling artery"—its last curve is seen just before apparently entering the lobule. When the decidua was carefully lifted up, as free from the villi as possible, it was noted that it opened, not abruptly into the intervillal space, but turned suddenly along the inner or ovular surface of the decidua (Pl. VII, fig. 16 III), branching into considerable ramifications, which spread out over this surface of the decidua. But these branches were not the only filaments given off to this decidua; before making the last curl very free branches were given off to the uterine aspect of the layer, so that it is clear to me that the aggregate of these many branches would suffice to carry off the blood of curling artery without requiring any further drain on it, which the supplying of a sinus-system would necessarily require.

But, again, the three branches of the funic vessels could be seen passing into these lobules (fig. 16 I *b*). When water was gently injected, by inserting the end of the syringe into one of the other lobules, that is, into the intervillal space, it was noted that the fluid passed along the sides of the three funic vessels, and distended these detached lobules, without any reappearance of the fluid at their uterine surface. That is to say, no fluid whatever came through these "curling arteries," which it should have done had these arteries opened at once

into the intervillal space. Of course, for this to have been accomplished under the idea of a sinus-system, the maternal wall of the sinus must have been broken down first on the circumference of the lobule where the funic vessels entered; but inasmuch as the lobule, was fully distended, this must have occurred had there been such a wall, in which case the fluid ought to have come out from the curling arteries. This it appears to me to be very strong proof that the intervillal space is free throughout the whole placenta, and, further, that it has no communication with the interior of the curling arteries nor the veins.

By whatever explanation we may suppose this detachment of the lobules to have taken place, whether by the very rapid enlargement of the interplacental area of the uterus or by the atrophy of the intermediate villi, each of these separate lobules must be considered to be a minature placenta and that which is true in the one must of necessity be true in the other. The freedom of communication between them in the line of the funic vessels shows that no sinus-system could exist, otherwise upon slight pressure blood should have flowed freely in the same line, which certainly was not the case in this specimen.

The period of pregnancy at which the decidual processes begin to appear in a distinctly recognisable condition is about the fourth month. It really commences before, but none of the peculiar features are ordinarily readily perceptible before that date. I have found about the fourth or fifth month diseased placentæ having the appearance of placentæ at full term by reason of the deep sulci over their uterine surfaces in consequence of the destruction of some of the villi by so-called inflammatory deposit; but in a normal placenta at fourth month of development it requires a section to show the process above described at all.

V. *Considerations from pathological conditions.* — Besides the above remarks, there are some other considerations which are derived from the pathological con-

ditions of pregnancy which lead one to the same conclusions.

If, in certain cases, the intervillal space of the placenta be opened, we do not find any hæmorrhage of necessity arise. If a fissure be made in detachment, or a penetration, as in placenta prævia, no serious hæmorrhage results, although if a sinus-system existed a large and probably continuous one would necessarily occur. This is a fact which can be proved very readily.

The great variability of the amount of hæmorrhage upon partial detachment of the placenta is explained by the above account I have given. For if the placenta be detached partly through a decidua process it will be readily seen how freely blood could flow; but if it be separated away from this point, and if no supplying vessel be left partially torn through, then very little bleeding ensues.

Again, if a portion of the placenta be torn off and left behind, if any portion of the piece have any opening of a vessel into it, as understood by the sinus-system, then hæmorrhage should flow continuously, which is certainly not always the case. But should a sinus be partially torn through, then a liability to bleeding would be found. If, also, a curling artery be also opened at the margin of the laceration, then, again, a certain amount of oozing would take place.

But, in reality, I may say that very few placentæ can be detached without an exposure of the intervillal space, so that if a partial separation occur the blood which flows in by the attached part would in a sinus-system flow freely out of the openings, and in every case a severe flooding would occur unless the whole placenta was very firmly compressed by the uterus. But in practice we do not, in detaching the placenta, meet with any formidable flow of blood.

There is also a condition of the ovum known as the "apoplectic," caused by the interposition of blood-clots amongst the villi between chorion and decidua. These are formed successively, in many instances pressing in the membranes towards the centre of the amnial cavity, till

sometimes the cavity is almost obliterated. If blood were always to be found amongst the villi, how, it may be asked, comes it that it coagulates, and acts as a foreign body? It might be answered that, like as coagula may occur in the heart when the circulation is very slow, so the same may occur in this position. Of course no answer can be made, because of the difficulty of the case. But supposing that it were already admitted that naturally there is no blood in the intravillal space, then the coagulation of blood upon its entry is a circumstance very easy to be comprehended.

From the consideration of the above-named facts I consider that the sinus-system theory projected by Hunter, and as now commonly received, rests upon unstable foundations; that it is difficult to reconcile it with the facts now adduced, and that where it is employed to explain certain phenomena, such as uterine hæmorrhage in pregnancy, it appears to fail; and also that when it has been used to clear up other theories it has been strained to the highest degree.

The whole of these difficulties vanish when the more simple explanation of the formation of the placenta I have just put forth is accepted. This I will endeavour now concisely to restate.

We will assume, with Bischoff, that the decidua has formed first a cup, and then wholly, or almost wholly, enclosed the ovum, by the upgrowth of the decidua (now decidua reflexa).

The villi nearest the uterine wall increase more than the rest, similar to the mode generally described. Gradually these become vascular, are firmly attached to the decidual surface, and by a slight growth of decidual cells their tips become imbedded for a very short distance.

The growth of the ovum within causes the base of decidua reflexa to overlap the decidua vera, and ultimately at this part they become intimately blended, forming a firm circumferential margin to the villi, thus defining the outline of the placenta. The villi continue to grow, but principally by their lateral branches. Their length increases, but not sufficiently to make up for the lateral growth; thus it is

that pressure is exerted on the chorion in a direction away from the chorion, and tension is consequently put upon the decidua to which the older villi are attached. At these positions, therefore, the decidua is drawn off from the inner surface of the uterus to a corresponding distance, corresponding to difference of growth of old trunks of villi and their branches, and a decidual process is formed. But as the growth of the placenta increases, so does that of the lateral villi increase over that of the original trunk; and thus the decidual processes become relatively longer; not nearer, however, the chorion, rather the reverse.

After the decidua has been drawn away a certain distance from the uterus a layer of smaller cells is formed across it; in the deeper processes this layer is repeated two or three times, bridging, as it were, across it. If blood should pass between, the appearance of a sinus is well imitated.

But these processes observe, as is well known, certain lines. These are dependent on the position of the vascular structure of the decidua, in other words on the arrangement of the curling arteries. There are two situations where the lateral villus-growth does not take place so vigorously as at others, namely, where the curling artery abuts on the inner surface of the decidua, and where its branches terminate at the centre and circumference of each lobule; at these situations, if the placenta be detached from the uterus, it will be seen that sulci occur. This is best shown about the sixth month; after that date other sulci occur, formed by a union of some of these in one line. All can be seen best in the large, highly developed placentæ; accidental sulci occur at a later period bridged over in most instances by a layer of cell-growth.

The whole of the interior of the placenta is one continuous space. Water injected in at one side would reach the whole interior without rupture of any tissue.

The uterine surface of its decidual layer is divided in the above-mentioned lobules; in the centre of each is a curling artery; on the circumference are the venous sinuses. These sinuses are drawn in with the processes, and, being rather varicose than regularly dilated, they project towards

the villi and touch them. Their walls are very thin and transparent, and are in parts actually touching the villi. If slight force be used these walls break down and thus an opening is made into the intervillal space, giving the appearance of a natural opening. The last turn or two of the curling arteries are also drawn in towards the chorion, not generally so much, but still so as to give rise to deception, for, its walls being also thin, if pressure be used it yields and the villi are exposed to view. The side of both artery and venous sinus being smooth, cover the processes in parts, and thus give the appearance as if the opening were normal and lined by the wall of the blood-vessel.

It remains to add that, instead of the curling artery opening into the intervillal space, it divides into branches which ramify on the inner surface of the decidua so far as each lobule extends; as it makes its last curl it is there that generally the villi can be seen through the wall. This is shown at Pl. II, figs. 1, 2.

By the ramifications of the curling artery and by the indrawing of the sinuses it will be seen that a provision is made for the approximation of the maternal vascular system to that of the fœtus, so as to assist the osmosis necessary for the fœtal existence.

I should add that the existence of a sinus-system has been disputed by Louth, Velpeau, Leiler, Coote, Radford, Ramsbotham, Millard, Noble, Adams, and Madge.

DESCRIPTION OF DISSECTIONS OF PLACENTÆ *IN SITU*, DETACHED, DISEASED, AND ABORTIONS.

PARTLY REFERRED TO IN THE FOREGOING PAPER.

1. *Dissection of a uterus at the sixth month of pregnancy.*

It had been opened and the fœtus removed. The placenta then occupied more than one third the internal surface of the uterus, extending from nearly the fundus to nearly the os uteri.

The decidua vera was still rather firmly attached to the uterus. Montgomery's cups were barely visible. On separating decidua reflexa from the chorion delicate fibres, probably effete villi, were seen stretching from one to the other.

The effete villi just outside the true placenta ramified over the internal surface of the decidua reflexa for nearly two inches; when detached, they left an impression on the decidua in which they were half involved.

The decidua serotina was then detached by most delicate touch of a light ivory handle, merely by its weight. Every portion was watched under an eye-glass of considerable power. The attachment was very feeble, and was sustained by two structures.

The *first* being slight bands of connective tissue, not muscular, holding scattered groups of single nucleated cells, very translucent, oval or round in form, by which the bands were separated.

The *second* connection was by blood-vessels of very small diameter, evidently the original blood-vessels of the mucous membrane; they were about one tenth of an inch diameter at the line of demarcation. Some were tortuous; others wavy, and here and there the spiral or curling arteries were seen. At this line, namely, that of future separation, all the structures were more or less tender, requiring much care lest they should be ruptured. No blood whatever issued from any part of the

line of separation, except where these small vessels were broken through, and this only in very minute quantity. I was unable to detect any sinus whatever passing out from or into the placenta through the decidua serotina, such as described generally. The only approach to them was in two similar instances where, in the separation, I opened a sinus in the uterine tissue beneath. This sinus, on being traced, ran in two directions into the deeper layers of the uterine wall, and had during its course abutted against the line of demarcation and was opened accidentally; a transparent layer of delicate tissue had been ruptured thereby.

The decidua serotina was not quite so thick as the decidua vera, but at the points where the vessels passed from the non-deciduous serotina to the deciduous there the tissue was markedly more solid and thickened.

On carefully inspecting the uterine surface of the decidua serotina I was struck by the appearances of blood-vessels running along the interior of the serotina and then dipping deeply into the substance of the placenta. On carefully examining the specimen, I found that these were lateral branches of the chorion villi, which, branching from the villi near their insertion into the decidua, had run along its placental surface, and then, the pressure of the exuberants of the branches of the neighbouring villi preventing them going further laterally, they turned backwards towards the chorion. They gave me at first the impression that the maternal blood-vessels furnished villi, but no connection could be traced between the maternal vessels and them, and after the examination of a number of placentæ at full term it was very clear that their real nature was as just described.

So far did these recurrent branches extend that in some instances of coarse-grown placentæ also examined they reached nearly to the chorion. Indeed some of the branches springing from about the middle of the villi sent back branches which came into contact with the chorion, and, indeed, made slight attachment to it. When charged with blood, and running along the decidual surface, nothing is easier than to mistake

these branches for the vascular ramifications of the maternal vessels.

There was in this specimen no appearance on the true villi of any other structure than their true coating. They were free and clear from attachment everywhere. But on carefully examining the intervillal space *not the slightest trace of blood was to be found within it*, neither was any sinus-system to be found in the decidua. It is true an appearance of one might be made by partially separating the deciduous from the non-deciduous serotina; the pseudo-cavities thus made, if blood flowed into them, would, to a superficial observer, give the appearance of sinuses.

It was, however, very certain that, supposing an injection had been used, all these tender and feebly supported structures would readily have yielded upon very moderate force, and then that the infiltration of the injection would have given some colour to the opinion that a sinus-system existed.

The same remarks would apply also to the effects of injections upon the blood-vessels dilated on the placental surface of the deciduous serotina, and the consequent infiltration amongst the villi.

I further noticed that the tips of the original trunks of the villi hooked themselves by their bulbous extremities on to the decidual surface, and that they there became inbedded slightly by the overlapping of a fine layer of cells, which, however, did not run down the trunks, but were evidently the epithelium of the decidua. These ends became effete, as far as their vascular portion was concerned, down to the last branch, and this, and generally also the next two, spreading out laterally, came in contact with the decidua serotina, and coursed along its inner aspect, partly, where in contact, overlapped by the layer of cells just above mentioned.

The chorion was now separated from the decidua reflexa at the margin of the placenta.

The two membranes were united by a very delicate but apparently structureless membrane. The old effete chorion-villi were found for two inches or more, as already noticed, beyond the margin, firmly attached to the decidua, of a white

colour, being torn off with difficulty, running on the surface, dividing at places, and ending in little bulbous extremities, interlacing sometimes. Nearer the placenta I found some villi attached to the decidua by their ends, which gave off branches laterally, and these, instead of attaching themselves to the decidua, ran inwards to the placenta among the trunks of the villi, but not adherent to any part whatever, similar in a measure to the recurrent branches of the other portion. When the two membranes were separated at this point the villi-stems looked like trunks of trees in a forest, free and clear from any covering whatever, either fragmentary or entire. It was among these trunks that the recurrent villi projected themselves. (Pl. III, fig. 8.)

The direction the trunks took were in a radiating form from the funis to the margin of the placenta.

But the separation between decidua and chorion at the margin was apparently so slight that it appeared to me that upon any pressure or disturbance blood would, if it existed in the intervillal space, find no difficulty in passing beyond the margin into between the decidua and chorion. But this is an exceedingly rare occurrence and is only observed in early states, where it assists to form the solid carneous mole, and where we at the same time find blood extravasated into the intervillal space.

As far as I was able to decipher the arrangements, I could at this point find no formation which would stand as the representative of a maternal sinus, and yet somewhere about this margin the outer wall or boundary of some kind of the sinus-system should have been recognisable.

2. *Dissection of a pregnant uterus at about the third month.*

The walls were about half an inch thick; sinuses were well marked everywhere, at the neck quite as much as elsewhere.

The cervix and wall anteriorly was slit up to fundus. The decidua vera was still attached to the uterus. It was very

pulpy and thick near the cervix, with whose mucous membrane it was continuous, although this cervical membrane had not undergone the change common to the interior of the uterine cavity.

The decidua reflexa was dense at its base where it was in contact with the vera and serotina, but became rapidly thinner, indeed almost a transparent layer, as it approached the portion of the ovum opposite its attachment to the uterus. It was firmly attached to the chorion, with which it seemed to form only a single layer.

The placenta was situated posteriorly, its upper edge being at the fundus.

It was carefully opened on its amnial surface, *not a trace of blood was within amongst the villi;* water was poured in, it diffused itself all through the interior, *but no blood nor bloody water escaped.*

The arteries had been injected with blue glycerine injection. There was a small portion of this found amongst the villi, loosely extravasated amongst them, which had entered from a ruptured vessel.

Now, had any blood been within, some surely must have been visible. But further, the colour of the placenta was almost in every part absolutely white.

The arteries of the decidua, into which the villi were implanted, were injected, but I could trace none whatever into the placenta; on the contrary, they could be seen ramifying, and thus expending themselves on the inner surface of the deciduous serotina, as I have noticed also in many cases.

From the margin to the placenta inwards I dissected off the villi from the deciduous serotina, but I could find no part at which this decidua left its original plane. Here and there the decidua seemed to rise up to the villi in a more abundant state, but it seemed merely the excited growth of the cells of its inner surface, caused by the implantation of the ends of villi, and the consequent local excitement.

The villi themselves were very clean, all their parts distinct, not enclosed in a general membrane, as found in some de-

scription. The velvety appearance at this stage, when seen by the naked eye or a low power, was not owing to anything upon them, but to the numerous small buddings of villi found on the surface of the older villi. The extremities of the villi were more bulbous than at a more advanced stage, and these dilatations were covered all over by small pendulous buds, filled with solid cell-growth at first.

The decidua reflexa inside was smoother and less marked with the oblique openings of the uterine glands at the part most distant from the uterus than it was at its lower third (that is, near the uterus). At this part the openings to the glands were much enlarged obliquely in form, from the stretching of the decidua during growth, so that they might be readily mistaken, if filled with blood, for the openings into the sinuses. These openings thus show that the face of the decidua reflexa had not altered its character, except by the general growth of the whole membrane upon the same plan as the uterine growth.

3. *Dissection of a pregnant uterus about the fourth month.*

Length, 7 inches; breadth, 5 inches. The patient had died after operation for hernia. The uterus was opened from below upwards, without injuring the placenta.

After opening the amnial sac the amnial surface of the placenta was examined. Its colour varied from light pink to deep purple, the latter occurring in patches, looking somewhat like varicose veins.

Two openings were made some little distance from one another; bright blood flowed from them in small quantities. Water was then injected into one hole, which issued from the other tinged with blood; as this indicated the presence of blood amongst the villi, and was apparently of too deep a tinge than would have come from wounded villi, I sought for a further explanation for its presence.

On carefully examining the interior of the placenta it was found that the purple patches noticed from the amnial

surface were coagula of blood situated and extravasated amongst the villi. But the source of these coagula could not be satisfactorily ascertained, whether it occurred from a rupture of the villi or came from the maternal side. In any case, had blood been normally present in the intervillal space, there would have been blood universally, either fluid or coagulated, disseminated among the villi, not localised in patches as here noticed.

From the distension of one of these patches when the funic vessels were injected with water, I am inclined to think that the effusion of blood had taken place from rupture of the villi.

A dissection was then made through the uterine wall to the placenta, and at the point of attachment of the villi to the deciduous serotina. This portion of the mucous membrane of the uterus was found highly vascular here, as also it was in other parts (decidua vera). The curling arteries were excessively well marked, and the venous branches were large and varicose, full of clotted blood in many parts. Taking into account the large quantity of blood in these vessels of the decidua, and the very small quantity found amongst the villi, it was difficult to understand why, the large spaces amongst the roots of the villi capable of being filled and of holding three or four ounces without much distension, there was not a large flow of blood when the intervillal space was opened, or a quantity observed within.

4. *Dissection of a pregnant uterus at three and a half months of pregnancy, the woman dying of chorea.*

On slitting up the walls of the uterus, from the os towards the fundus, on a director, it was noticed that no decidua was visible on the cervical portion, the mucous membrane being still firmly attached to the muscular portions of the cervix.

Above the inner cervix the decidua vera gradually became more separable from the uterine wall. The director passed

readily between the uterus and the decidua, but still more readily between the latter and the ovum.

The walls of the uterus were then thrown open so as to expose the uterine aspect of the decidua vera. On that aspect were noticed to ramify in it a network of large veins full of dark clotted blood. The largest were about an eighth of an inch in diameter. They anastomosed in every direction with various sized veins, the arrangement being very complex, particularly marked just above the os internum.

Montgomery's cups were but slightly noticeable, their position being indicated by their lighter colour, giving a mottled appearance to the surface, irrespective of the network of blood-vessels. The uterine wall was then dissected back from the margin of the placenta to the centre, for one and a half to two inches. The difference of the aspect of the decidua serotina from that of the decidua vera above described was merely in the increased size of the vessels in the various layers. Indeed, such was the abundance and size of these networks, that it appears (judging of the necessities of the case) that the blood furnished by them would be amply sufficient for the requirements of the fœtus.

Some of the veins were found to run parallel to the line of separation for a considerable distance (one inch and a half) before dipping into the decidua, much in the same manner as is to be observed in the course of the deeper uterine sinuses, of which they are branches. The decidua serotina was then examined with reference to its thickness. It was found that the ends of the villi were more or less exposed in some parts, or so slightly covered in others as to be liable to be so upon slight movements.

Being anxious to ascertain if any blood were in the intervillal space, the decidua serotina was slightly lacerated with much care; upon this a slight oozing of watery blood took place, which pressure somewhat increased. It is impossible to say what amount of blood might have entered the intervillal space during the separation. Water was gently used to wash that which seemed likely to enter; probably only a small quantity succeeded in entering.

The placenta was then opened on the amnial surface as carefully as possible, and a small quantity of blood was seen to exude; and then, in order to see whether this came from villi cut through, or from the intervillar space, the funis was injected with blue, and it was found that, notwithstanding the great care taken to avoid wounding the fœtal vessels and the villi, one had been cut through, and from this the blue injection poured forth freely.

The quality of the blood in the fœtal vessels was then compared with that of the uterine, and then both these with the watery blood in the inter-placental space. It was found under the microscope that the relative quantity of blood-corpuscles in the maternal and fœtal blood was about the same, whereas in that in the inter-placental space the relative numbers were about 500 times less. So marked a difference one would think could not have existed had a sinus-system permitted the entry of blood into that space. Half a dozen drops of blood into the space would, I should suppose, be sufficient to produce the same result.

The reflex decidua was then separated from the margin of the placenta, beginning at some slight distance from it.

The effete villi, for an inch or so from the true placenta, passed from the chorion upwards along the inner surface of the base of the decidua reflexa, running between the latter membrane and the chorion, with both of which they were in contact. Their tips were bulbous and opaquely white, firmly rooted into the decidual surface, spreading out into four or five branches, the ends of which, also, were firmly attached to the decidual surface. These effete villi were about one eighth to one tenth of an inch apart, and between them the proper or active villi passed, having doubtless extended there by their growth and the inward pressure. At this point nothing of a maternal character could be seen between chorion and decidua reflexa, nor between the villi, the cavity of the placenta being apparently continuous with the space between the chorion and decidua reflexa, when these two were separated.

5. *Dissection of a uterus pregnant at fourth month.*

The patient had died in a fit; the membranes were ruptured and the leg of the fœtus drawn through the os uteri before I received it.

The uterus was carefully slit up from below, and it was then found that the lower edge of the placenta had already been detached from the uterus for about one sixth to one eighth of its total area. This, of course, prevented the formation of any decision as to whether blood was to be found in the intervillal space, because an opening already had exposed this space to the exit of its blood as well as to its invasion. Blood was certainly found amongst the villi, but its source was not made out.

The inner surface of the decidua serotina was rugous, and the old apertures of the follicles well shown, between which the villi-tufts pushed themselves, but no processes of decidua were to be seen. Capillary vessels were seen running over the inner surface of the decidua, like those I have noticed in more mature placenta.

The margin of the placenta showed the extension of the old effete chorion villi an inch beyond the junction of the decidua reflexa and vera.

6. *Dissection of a placenta.*

It was delivered at full term, and was large and firm with yellow albuminoid deposits in some parts. The deciduous serotina was firm and irregular, the sulci between the lobules in many parts much levelled up, and agglutinated together by a deposit of new tissue. In certain parts of the large lobules relics of old sulci were found completely closed over, the only indication remaining being the opening of the veins. These were found after careful search to pass very obliquely, and then, when traced by cautious separation of the agglutination, were found in many instances enlarging and

dilating. They passed sometimes so deeply into the placenta that it seemed as if they opened into the middle of its interior amongst the villi; but this was not the case, as was seen upon still more careful inspection. It was then seen that, although these dilated veins accompanied the decidual processes, yet there was a very delicate membrane (the wall of the vessel) which separated the villi from the maternal blood. So delicate it was, as may be supposed, that had a probe or bristle been employed in tracing it, it would instantly have given way, and the probe would have passed amongst the villi. As these dilatations were situated on the placental surface of the decidual processes, and as each process was really a double layer, the dilated vessel had these two layers on the one side and the villi on the other.

So far, the villi were in contact with the maternal vessels.

The decidual process could be seen to be produced by the shorter condition of the trunks of the villi inserted into the serotina at this part. The lateral branches, growing vigorously, put pressure on the chorion, which, yielding, draws upon the serotina, and of course the shorter trunks act most markedly, and thus gradually the deciduous serotina is drawn away from the uterus, including with it, of course, its blood-vessels, dilated more or less. In some parts the dilated vessels are well marked, in others they are but slightly, and this is noticed to vary in different placentæ, the dilated vessels in some being very scanty, while in others it is strongly marked.

7. *Examination of a mature placenta.*

It was a "battledore" shape, *i.e.* the funis inserted into the margin. Very little hæmorrhage accompanied the shedding of it. The medical attendant said very little, if any, exuded before he gave it to me. He had slightly washed it with water to remove adhering blood, and rolled it up in a cloth. This cloth, when I opened it the next day, had no stain of blood on it.

Five openings were made, about three inches from one

another. No blood flowed from either. Water was injected through one hole by a syringe; it flowed out from the other perfectly free from colour. This was done freely, and, to make still more sure that the whole intervillal space was free from blood, I passed the injection tube down to the serotina with the same result. The water flowed freely throughout the whole organ, raising it up throughout. The placenta was then turned over, and injected with water with the same result. The fluid was retained well within the serotina, not flowing out at any spot except at the few parts where the deciduous serotina was wanting.

It is clear that at that time there was *no trace* of blood, even supposing it had flowed out before being placed in the cloth, yet then it is almost incredible that *no trace* whatever of it should have remained, when we consider the large cavity and the small apertures through which it could escape.

The fluid which did appear on the serotinal surface did not flow through the curling arteries, nor dilated veins, which it ought to have done had they been the natural channels in and out of the intervillal space, and it was particularly noticed that over one large portion of the deciduous serotina no fluid at all appeared, there being no denudation of the villi.

The deciduous serotina was most highly injected in every spot by a very complete network of blood-vessels, seen easily by a low power, on the uterine surface. Besides these the curling arteries ramifying very obliquely, as usual, with all uterine vessels.

There were deep sulci in places, in one very marked, extending nearly down to the chorion. This had not prevented the water from passing equally throughout the whole interior.

The decidual processes were double, readily seen on separation; but if care was not taken, the layer was readily broken through, giving the appearance of a natural opening having been reached, inasmuch as the villi were exposed.

As in other placentæ, these processes were produced by the slower growth of the original trunks of the villi, compared with

the rapidity of their lateral branches, which push the chorion away, and thus draw off the deciduous serotina from the non-deciduous. If this were compared with the placenta at earlier stages, the effect of this exuberant growth could be readily traced.

The layers of new membrane which bridged over the sulci often hid the sulci, and if blood was effused amongst the layers the resemblances to sinuses would be much increased.

8. *Examination of a mature placenta in the state called "fatty."*

The fœtus had been alive within a week before delivery; very little blood had come from it, not enough to soil the wrapper which enclosed it. A very little escaped during its delivery. It was in the same state then as when I received it as to colour and consistency. It was sulcated deeply. In the centre of each lobule was seen a curling artery, which penetrated a variable depth in the various lobules, about $\frac{1}{4}$ inch at the deepest. A little blood was in each vessel; but with the exception of this there was no tint whatever of blood. The contrast was very marked between the curling artery with the contained blood and the pale yellow bloodless villi.

In the mass the placenta looked like a cake of fat as to colour, and the deciduous serotina over its maternal surface gave it a smooth surface, something resembling the fat of the kidneys.

Upon opening the intervillal space *no trace of blood* was visible amongst the villi. The villi were themselves in nearly every part bloodless, their interior was occupied by cells which had solidified them; some were undergoing fatty degeneration, but in the greater number abnormal cell growth was the cause of the change in character of the villi. Supposing that there were blood normally amongst the villi, how could the change in the villi explain its *total* absence? Amongst the roots of the villi there are places from which blood could not have exuded so as to leave no trace behind.

9. *Description of the so-called "fatty" placenta.*

The child had been living up till a fortnight previous to labour, which took place at full term.

The placenta was pale in colour, without a trace of blood between the villi. The curling arteries were rather more varicose than usual, and very distinct. Some could be traced ramifying by their branches on the placental aspect of the deciduous serotina; these branches were in contact with the villi, but not dipping amongst them; and although they were engorged with blood, not the slightest quantity extended beyond their walls.

The villi had but little remains of the fœtal blood in their capillaries; here and there a slight appearance to indicate their course. There were no fatty globules within them, merely a nearly entire absence of blood in the fœtal capillaries. This state rendered the absence of blood in the intervillal space a matter of complete certainty.

10. *Examination of a mature placenta in the condition called "fatty."*

The child was born dead, but well nourished, and had not been dead long.

The general aspect of the placenta was pale and fatty in appearance. It was very markedly sulcated; the sulci deep. The surface showed very dilated veins, and also curling arteries. Some of the veins dipping into he sulci were $\frac{1}{4}$ of an inch across. Some of the curling arteries were filled with black blood; they were highly raised and very tortuous. The whole of the maternal vessels were in marked contrast with the pallor of the villi, on which no fœtal blood was present. On carefully tracing the curling arteries they were found to enter into the placenta, dipping down half way towards the chorion, being about $\frac{1}{8}$ to $\frac{1}{4}$ of an inch in diameter. Indeed, it appeared at first sight that they were enclosed in a

vessel with a thick wall, but on carefully examining it was found that the spot where the artery was situated was drawn in by the shortness of the villi-trunks implanted there, so as to form a tube of the deciduous serotina in which the artery was curling. This tubular sulcus was bridged over by adventitious layers, in the same manner as the other sulci, so that it was quite concealed from view when seen from the outside. But outside this blood-vessel so situated, that is, in the intervillal space, there was not a trace of blood, as was seen in the case just before described.

Water was thrown in, but not a sign of blood appeared in it as it again escaped.

11. *Description of an aborted ovum, which came away complete with the decidual coverings.*

The true ovum was about one inch in diameter. The decidua vera about a quarter inch thick. The Montgomery cups were scarcely marked. The inner or free surface was somewhat velvety, lobulated, and generally smooth.

A protusion about one and a quarter inch long projected into the interior of the decidual or uterine cavity, without any aperture, covered with decidua reflexa. This reflex covering was evidently of the same structure as the vera, but of unequal thickness; nearer the uterine wall it was much denser than at the opposite part; within this projection into the uterine cavity the ovum was situated, and, indeed, could be readily seen if viewed through the part of the projection which had been in contact with the uterus, namely, through the deciduous serotina. This latter layer was of very uniform texture throughout, slightly opaque, rather denser than the chorion, so transparent that the ovum and its fœtus within could be distinctly made out. It was slit up, and found to be smooth on its ovular surface up to the base of the decidua reflexa, with which it was continuous.

No *chorion villi* opposed this layer (the deciduous serotina), not even a trace of one; it was simply a transparent mem-

brane through which the ovum could be seen in the amnial fluid.

On tracing the internal surface of the cavity formed by the decidua serotina and reflexa, it was found to be generally smooth; but openings of an oblique outline, readily recognisable as the openings of the uterine follicles, were found on the inner surface of the decidua reflexa. The openings were much larger than in the unimpregnated state, but were more like a slit.

Chorion villi were only found attached to the base of the interior of decidua reflexa, having a vascular arrangement, and the chorion and decidua were in close contact, only permitting the running of the villi between them, which did not pass perpendicularly to the decidua from the chorion, but passed radiatingly along between the two membranes and in close contact with both.

There was not the slightest appearance of any dilated vascular element; the villi did not crowd each other, nor come into close contact. There was no dovetailing of the fœtal and maternal vascular system, nor any process from the decidual surfaces which could lead up to any sinus-system.

The villi, it was noticed readily, did not enter the openings of the uterine follicles, nor was there any attempt at such an arrangement, the openings of the follicles being a quarter of an inch in many instances. The whole position was so readily examined under water that no such a plan as necessary on the supposition of an incipient sinus-system could have been overlooked. I need to this hardly add that no blood existed between the chorion and decidua layers.

The villi were covered with a layer of flat cells, irregularly hexagonal, like Van der Kolk has given, but they could not be seen on the chorion surface so markedly, but on tracing down the trunk of a villus from apex to the junction with chorion a gradual change took place, without any mark of a sudden break, so that the layer on the chorion was continuous with that on the extremity of the villus, and apparently was the exo-chorion, which was pushed out during the

sprouting of the villi, and became more developed at the seat of functional activity, namely at the ends of the villi.

This was the "so-called" maternal layer of the villi. I would name it the *exo-chorion*. I should add it was found also on the lateral branches of villi. The walls of the villi were also, inside this layer, composed of irregular cells.

The funis of the fœtus was spirally twisted. The funic vessels passed towards the side of the chorion villi, *i.e.* not, as usual, to the serotina, which is a fact of much interest, as helping to determine the cause of the situation of the placenta.

I may add that the eye was partially developed. The crystalline lens was developed and opaque, adherent to the cuticle, composed of numerous cells (whose shape was not easily seen), enclosed in a capsule. The pigment was slightly developed around cells, like as may be seen early in the development of the eye in invertebrata. It was difficult from the state of the specimen to make out more. The umbilical vesicle was well marked.

12. *Examination of an ovum expelled seven weeks after last menstrual epoch.*

It was entirely closed in the decidua, which came away perfect. The ovum was half an inch in diameter. The decidua serotina and reflexa seemed equally dense throughout. Blood-vessels, well injected with their blood, were to be seen ramifying *over every portion of the bag of decidua reflexa*, except at the central portion opposite the serotina.

On opening the decidua serotina the ovum was seen within. The chorion villi altogether were less numerous than usually figured in works on the subject; they were spare on the serotinal aspect, but closely in contact on about one fourth of the surface of the ovum, namely, about the base of the decidua reflexa. Their extremities were attached to the inner surface of the decidua; but although the vessels were seen on this surface, there was not the slightest

evidence that any distension of the maternal vessels had surrounded the villi anywhere. The villi were so distinct that the sinuses must have been seen had they been present. It is to be noted that had they been present the maternal elements must have undergone three times the development of the villi, in consequence of the distance between the trunks. No blood was found amongst the villi. I could not trace any fœtal vessels to the villi.

13. *Examination of a mature placenta.*

It was battledore shape, but nothing in general aspect different from the average. The whole deciduous serotina was very thin. It was very vascular, but no large sinus was visible anywhere. The curling arteries were readily seen running between the layer of the thin serotina, and then on to the inner aspect. Blood-vessels could be seen through the serotina branching right and left for an inch in many instances. Careful investigation showed them to be the lateral branches of the villi, which, impinging on the inner surface of the serotina, after a certain distance bent inwards again towards the chorion some distance. On the trunks of the villi the appearance—a network of capillaries injected with blood—was well marked, such as has been described by Van der Kolk.

A small quantity of blood was found amongst the villi. There were many fissures in the serotina. Water injected in the intervillal space, through the uterine aspect, came indiscriminately through the whole placenta, but flowed out again, not through any curling artery or sinus, but through the fissures in the serotina. The latter fact I have frequently found in other placentæ.

Dr. Madge said that he had worked a good deal at the subject. He gave a short statement of his views. He felt convinced that the Hunterian doctrine respecting the utero-placental vessels was a mistaken one.

JUNE 5TH, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—41 Fellows and 11 visitors.

Books were presented from Professor Karl Schroeder, Dott. Cesare Belluzzi, Dr. Francis Hogg, R.H.A., and the Massachusetts Eye and Ear Infirmary.

The following gentlemen were declared admitted as Fellows of the Society:—Dr. Brockmann, Dr. Charles E. Buckingham, Dr. Charlton Fox, Mr. John E. Kennedy, Dr. Norman S. Kerr, Mr. F. M. Rickard (Cannanore), and Dr. John Wallace.

The following gentlemen were elected Fellows:—Charles J. Bracey, M.B., Birmingham; Geo. B. Denton, M.R.C.S., Liverpool; Henry Mortlock Fernie, M.R.C.S., Macclesfield; Crosby Leonard, M.R.C.S., Bristol; Maro Tuckmann, M.D.; and Charles B. Waller, M.R.C.S.

Dr. Munde exhibited for Professor Simon, of Heidelberg, a scoop for removing superficial portions of malignant disease of the cervix when more complete measures could not be entertained.

Dr. RASCH, induced by Professor Simon's visit and paper on the subject, scraped off the vegetations in a case of uterine cancer. Little blood was lost at the operation, and relief followed for some time. That was all that Professor Simon promised, and it certainly is enough to justify an extensive trial of his handy little instruments.

Dr. Barnes assented generally to the principle of dealing with cancer by removing the superficial proliferating portions which were the seat of the most immediately dangerous symptoms, as hæmorrhage and foul discharges. The instrument of Professor Simon, although different in form, did not differ in its use from the curette of Dr. Marion Sims, which he had frequently employed to scrape off the the active vascular proliferating layers of malignant growths. The principle was the same as that of removing by galvano-caustic or wire-écraseur cauliflower excrescences from the cervix uteri, even in cases where we did not hope to remove the substratum of malignant tissue. The patient gained comparative respite for a time from hæmorrhage and pain, and he had seen marked diminution of the cancerous cachexia follow. One caution he had to suggest in the use of the actual cautery. If the disease extended into the body of the uterus, the application of the actual cautery to this part was apt to cause thrombosis in the vessels just at the level of their entry into the broad ligament. This and the attendant inflammation was likely to induce phlegmasia dolens, which, in cancer, was usually soon followed by death.

The following report on the specimen exhibited by Mr. Grieves, of Stamford, was then read:

The fœtus, a premature one, is naturally formed and measures thirteen inches in length. An irregular lobulated growth, nearly as large as the head of the fœtus, hangs from the mouth by a short pedicle. The pedicle is attached to the roof of the mouth, but is found on dissection to spring from the body of the sphenoid bone. The growth consists externally of a number of soft roundish lobes, which have been so injured by desiccation, &c., that their structure cannot be satisfactorily ascertained. They have thin plates of bone interspersed through their substance and are loosely filled with dried blood-clots.

The central part of the growth is composed of numerous pieces of bone and cartilage, united together into a compact mass, with here and there little deposits of fat. None of the bones can be identified.

We are of opinion that the above growth probably represents a secondary fœtus.

J. Watt Black,
J. B. Potter.

Dr. WILTSHIRE said that the report agreed in every essential particular with one Mr. Thomas Smith and himself had made to the Pathological Society on an almost identical case.

The following letter from Dr. Godfrey, of Enfield, giving further particulars of his case of syphilitic disease of the placenta, was then read :

DEAR SIR,—I enclose you further particulars of the case of syphilis to which you kindly refer. The husband has given me these details.

I remain, yours very sincerely,
B. GODFREY.

He contracted syphilis three years and a half ago. Had a primary sore, the scar of which I have seen. There is no sign of disease upon him now. He has had constant connexion with his wife since she has been under treatment. He thought that he was cured before he married, and got the permission from his medical man. He evidently had tertiary syphilis. The wife had two primary sores upon the vulva, with hardened base, and a secondary rash all over her arms and neck, when I first saw her in September. There was also the general malaise of syphilis.

I put the infant upon Hyd. c. Cretâ bis die a few days after it was born, and have continued it up till now, so that one cannot see any vestige upon the child.

The husband's face is scarred as if smallpox had attacked him. This, he says, was from skin disease, which lasted a long time. It is like the scar of secondary syphilis.

A SHORT ACCOUNT OF THE CASES OF THREE SISTERS IN WHOM THE UTERUS AND OVARIES WERE ABSENT.

By Charles E. Squarey, M.B., M.R.C.P.,
ASSISTANT PHYSICIAN TO THE HOSPITAL FOR WOMEN, SOHO SQUARE; PHYSICIAN-ACCOUCHEUR TO THE ST. MARYLEBONE GENERAL DISPENSARY.

The following three cases of absence of the uterus and ovaries occurring in three sisters, aged respectively 26, 18, and 16 years, I bring before the Society, not that I have anything to offer in explanation, but rather as a curious fact in congenital malformation which is worthy of being placed on record.

The congenital defect seems to have been derived from the mother's family, she having a sister in whom the catamenia have never appeared, and also three aunts who, though married, never had any family; but of the condition of the catamenia in her three aunts or of the uterus and its appendages in either of the cases, I have not been able to obtain any exact knowledge.

The mother of these girls is a strong, healthy woman, aged 56. She has always enjoyed good health, and does not know of anything to account for the malformation in her children. The catamenia made their appearance in her when she was twelve years old and ceased at forty-six. She was always regular, excepting during her pregnancies. She has had five children; two died young, a boy and girl, and both were, as far as she knows, well formed.

The father died of consumption. He was married twice, and by his first wife had children, some of whom have married and borne children; by his second wife, the mother of these three cases, the five children above referred to.

The occurrence of the same malformation in various members of the same family is so frequent that it is hardly worth noticing, as also the direct transmission of such malformations from parent to child, but in the case before us

the tendency to malformation was evidently latent in an otherwise perfectly healthy woman, and was so strong as to maintain its influence throughout a period of ten years from the birth of the first to the last child.

It would have been very interesting to know for certain the condition of the boy who died young, whether congenital deficiency existed in his case or whether it was only limited to the female members of the family. The mother most positively asserts that he was well formed, and her evidence with regard to the perfect development of the male generative organs might, I think, be very well relied on. We know that in other malformations and in disease it is not uncommon to find the mother transmitting them to the daughters, the sons being healthy, and, *vice versâ*, the father transmitting them to the sons, the daughters being unaffected.

The following is a short account of the conditions of the three girls.

M. A. F—, æt. 26, a well-formed girl, following the occupation of laundress, came under my care at the Hospital for Women, in Soho Square, in August, 1871, complaining that she had a contracted womb and that her catamenia had never appeared. Generally she has had pretty good health, never very strong, but is not getting weaker now. She suffers from pain across the back occasionally and headache, but not at all regularly.

On examination the vagina was found to be represented by a cul-de-sac about 1½ or 2 inches long, fairly capacious. No sign of a uterus discoverable, either by vaginal or rectal examination or by the conjoined vaginal or rectal examination. By the latter the fingers could be made to meet easily over the whole of the lower part of the pelvis. No solid mass could be detected with the sound in the bladder. No tenderness on examination.

The pubes was entirely devoid of hair, but there were a few hairs scattered round the vulva. The labia were of a dark violet colour. The breasts were well developed.

E. F—, æt. 18. Complains of occasional headache and

giddiness, but not at all severe. She has no periodical pains. The catamenia have not yet appeared. Vaginal examination, conducted as on her sister, disclosed exactly the same conditions, except that the vaginal cul-de-sac was somewhat shorter and smaller.

J. F—, æt. 16. A fair-haired, rather pretty girl, well-formed figure for her age, says that she has never been very strong, but has had on the whole very good health. Suffers from headache occasionally and cramping pains in the stomach, but neither are periodical in their occurrence.

The same conditions as in her two sisters were found on examination.

With regard to all three, there was nothing in their outward appearance to lead one in any way to suspect any such malformation in the generative organs. The two elder sisters said that they had occasionally very slight desires for coitus.

I may add that I have taken care to see that these cases have not been published before.

Dr. Phillips stated that in 1870 there were two sisters under his care at Guy's Hospital in whom no trace of a uterus could be found. The one was twenty years of age, of dark complexion, rather diminutive in stature. The external genitals were perfect, the pubes was covered with hair, and the mammary glands were well developed. The vagina was represented by a short but dilatable canal, about an inch long, terminating as a *cul-de-sac*. A careful pelvic examination failed to detect any trace of a uterus, and, as far as an examination during life could decide, there were no ovaries. She had been subject since her marriage at seventeen to pain in the loins, sickness and headache, and she thought these were worse for a few days every month. There had never been any discharge of blood from the vagina. The patient stated that one of her sisters had never menstruated, and when the latter presented herself it was found that a malformation similar in every respect to that in the former case existed. She also was married, was twenty-one years old, very like her sister in appearance, but taller, and she complained of the absence of sexual feeling. It was worthy of notice that in Dr. Squarey's cases and his own the breasts were well developed. It was, of course, possible that the ovaries existed; but this seemed very

improbable in one case which he had seen, in which although, the breasts were large, the whole of the internal genital organs seemed absent. The urethra was natural, but there was no external opening between it and the rectum. With a catheter in the urethra and a finger in the rectum, the urethro rectal septum was found to be about the natural thickness of the recto-vaginal. The finger in the rectum and the hand above the pubes met easily. The patient was twenty-four years old, and had come up from the country to ascertain whether she was fit for marriage, as menstruation had never appeared.

Dr. Heywood Smith said that about five weeks ago a similar case came under his care at the Hospital for Women. A woman nearly 30 had not menstruated, and on examination there was found merely a small knob about the size of half a filbert to represent the uterus. Some years ago he had under his care a Jewess, who, as far as he could ascertain, had no uterus, a very short vagina, a urethra wide enough to admit the tip of the little finger, and who menstruated through her bladder; and another case where there was a normal uterus but total absence of menstruation and that girl had full whiskers and beard.

Dr. Rogers had had three cases of absence of the uterus in otherwise well-formed and healthy women, the vulva, labia and mammæ being well developed; he had seen two more in the practice of his colleague, Dr. Routh. In his own cases there were small vaginæ large enough to admit half a finger, and which could have been dilated had it been necessary. They all stated they felt sexual excitement. Most likely the ovaries were present, though not felt. The most careful examination, even with the hand in rectum, while the patient was under chloroform, failed to find a trace of the uterus Two of these cases contemplated marriage, and not having ever menstruated desired to know whether they ought to be married or not. Dr. Rogers' opinion was against their contracting such ties under their peculiar circumstances.

Dr. Tilt was not prepared to admit that the ovaries were absent in women who owned to sexual feelings and presented a normal development of the mammary glands; he preferred to admit that in such cases the ovaries were placed beyond the reach of the observer's finger. Dr. Tilt reminded the Fellows that, as a rule, in healthy women who had borne children it was not possible to identify the ovary unless the pelvis be unusually shallow or unless the ovaries had descended lower down, from having been made larger and heavier by chronic inflammation.

Dr. Barnes said that it was not to be too readily assumed that the uterus or ovaries were absent on the negative evidence of examination during life. Kussmaul declared that these organs were rarely altogether absent, some rudimentary representative could almost always be found on careful dissection. At the same time there was

distinct evidence to prove that they might be absent. There was a preparation in University College Hospital from a girl aged 21 who had never menstruated; no ovaries could be seen, and the uterus retained the characters of that of a young child. In several cases where the uterus and ovaries were absent or imperfectly developed he had found no vagina. In one such case he dissected up an artificial vagina a year ago, and a few days ago this vagina existed well preserved. The patient habitually wore an elastic dilator; if she omitted this for several days there was a tendency to contract. In this instance there was no hereditary association; she had married sisters who had borne children.

Dr. WILTSHIRE agreed with Dr. Phillips in thinking such cases were not very rare. He suggested that some information or guide might be obtained by external measurements of the pelvis and by observation of the condition of the breasts. He mentioned cases where patients had borne children after treatment of malformations supposed to be irremediable.

LONG DELAY OF LABOUR AFTER DISCHARGE OF THE LIQUOR AMNII.

By J. MATTHEWS DUNCAN, M.D.

MRS. S—. æt. 22, mother of two healthy children born at the full time, was unfortunate in her third pregnancy, the events of which I now relate. She had her last monthly illness in the end of September, 1871, and expected her confinement in June, 1872. On February 23rd she quickened, and stirrage continued to be felt till the child was born. The size of the child when born and the date of the quickening render it probable that conception did not occur till near the end of October. On March 10th there occurred during the night a copious flow of liquor amnii and slight irregular pains were felt. The uterus at this time was bulky, filled the lower belly, and its upper margin was considerably above the level of the umbilicus. The liquor amnii continued to discharge freely, but not constantly, and irregular slight pains were often felt, generally during the night. The uterus gradually diminished in bulk and increased in

hardness, and at last, and not later than a fortnight after March 10th, it felt not much bigger than a large adult fœtal head, as hard as a fibroid, and did not occupy the whole hypogastric region, but lay much inclined to the left side, its fundus being somewhat below the level of the umbilicus. For more than a week before the coming on of labour Mrs. S— thought that the uterine tumour was slightly increasing in size. On the 20th April some shortening of the cervix could be felt by the examining finger, and this shortening slowly became greater without any increase of the occasional sensible pains. On the night of April 25th regular pains came on. The child presented the breech. No bag of membranes could be felt, and no gush or considerable quantity of liquor amnii was discharged during labour. When the breech distended the orifice of the vagina the child was extracted alive. The placenta was soon taken away thereafter; it was carefully examined and found to be natural, presenting the characters of the afterbirth of one child. The membranes also were natural, and were ruptured at the anti-placental pole of the ovum. The child was of the size and had the characters of a six months' fœtus. It cried feebly and made violent respiratory struggles; but from the weakness of the thoracic skeleton they were nearly quite in vain, for the sternum and its adjacent costal cartilages were at each inspiratory effort violently drawn in, and as a consequence a great depression formed in the epigastric and sternal regions. The child lived for a short time. Its lungs were found to contain a little air, which could be squeezed out of them under water and so seen, but no part of the lungs floated in water.

The child weighed 1 lb. 15 oz., and was thirteen inches in length. Its eyelids were closed; the vernix was everywhere rubbed away except on the nucha; the testicles had not descended into the scrotum. When born, it lay with its legs extended on the thighs and the thighs bent so that the limbs were adpressed to the body. Besides this position the limbs and features of the child showed signs of compression, which can scarcely be described, except so far as the auricles are concerned. These were pressed flat on the skull and by the

vernix caseosa made to adhere so closely that a careless observer might have thought them absent.

There appeared to me no doubt as to the facts of this case. So far as possible, everything came under my own direct observation. Pregnancy must therefore be regarded as having continued for forty-five days after the rupture of the membranes and the discharge of some of the waters. This long delay of the coming on of labour is not the only remarkable feature of the case, but also the circumstance that the fœtus continued to live in a uterus so contracted as this was for weeks before its birth. In these respects the case is instructive.

Numerous similar cases are recorded, but most of them are defective in the supply of such circumstantial data as contribute not only to their fulness but to their confirmation. In a matter like this, where various explanations of the source of the discharge may be suggested, and where there is much room for error, it is necessary, in order to the greatest sufficiency of a recorded case, that every detail which can contribute thereto be pressed into its history. Some cases are, indeed, so remarkable and so rare that in the mean time no amount of circumstantial or indirect evidence is sufficient to ensure their being received as true representations of nature. Among such I place the following, which I give in the words of Burns ('Principles of Midwifery,' tenth edition, p. 283) :— "Dr Pentland relates a very distinct case, where the liquor was, in the third or fourth month, discharged in a fit of coughing. The belly fell, but she still went on to the full time, and had a good labour. ('Dublin Medical and Phys. Essays,' No. 1, art. 3.)" In order to explain such extraordinary long interval between the discharge of the liquor and the coming on of labour, Burns resorts to an hypothesis which appears to me to be not only without any rational grounds, but contrary to all we know, and the resort to it is good evidence against the reality of the occurrence which he so attempts to explain. The hypothesis is that the torn membranes may be healed or the hole in them closed; and it is said to be necessary to suppose such healing, because, when labour comes on, a dis-

charge of liquor amnii takes place. "The aperture (says Burns) seems to close, if gestation go on for during labour a discharge of water takes place." At present I believe that obstetricians would reject all such hypotheses, and hold that entirety of membranes is a sign that they had never been ruptured and that the discharge of liquor amnii in any considerable quantity during labour affords at least a presumption against the belief that the rupture of the membranes had taken place long before labour began.

Dr. Pentland's case is, indeed, a good example of an incomplete and unsatisfactory report, for there is room for supposing that the water came from the bladder. The waters are described as bursting in a fit of coughing, and the urine as coming away involuntarily by the force of coughing when the patient was in the horizontal posture. After delivery the urine was discharged involuntarily: and there is no account of the state of the membranes in early labour.

Among recent cases of long interval between discharge of liquor amnii and the coming on of labour are the following:—Mr. Bradley, of Manchester ('Brit. Med. Journ.,' vol ii, 1871, p. 612), relates a case of six weeks of interval, the child being described as if born alive. Mr. Norton, of London ('Brit. Med Journ.,' vol. ii, 1871, p. 667), relates a case of seven weeks' interval. Mr. Bassett, of Birmingham, relates a case ('Brit. Med. Journ.,' vol. i, 1872, p. 155) where the interval was six weeks. Dr. Swayne, of Bristol ('Brit. Med. Journ.,' vol. i, 1872, p. 184), gives a case of a month's interval. Mr. Cox, of Winchcombe ('Brit. Med. Journ.,' vol. i, 1872, p. 367), gives a case of delay of labour for thirty-three days after rupture of the membranes. Dr. Thorburn, of Manchester, records a case of six weeks' delay, after which the child was born alive ('Brit. Med. Journ.,' May 18th, 1870, p. 520).

There are various conditions which may be mistaken for premature or periodical evacuation of liquor amnii. Among these are discharges of urine from the bladder, watery discharges such as are sometimes observed in virgins, and whose source may be Cowper's glands or the cervix uteri, discharges from the uterus of a fluid occupying the anatomical position

of hydroperionic fluid, discharge of liquor chorii or false waters; discharge of the liquor amnii of one ovum in a case of plural pregnancy; discharge of the fluid in a cyst described as occurring between the chorion and the amnion. Examples of these discharges I have observed in circumstances which showed that there was much doubt and difficulty as to their source, or even positive error. In the case which I have related it appears to me impossible to accept any of these views as to the source of the fluid evacuated. That it was the liquor amnii is proved by the subsidence of the uterine tumour, by the diminution of its bulk, by the increase of its hardness, by the complete absence of discharge of liquor amnii at the time of labour, by the compressed state of the child, and by the almost complete rubbing off of the vernix caseosa. Another occasionally present item of evidence described by Burns was absent in my case. "I have known (says he) a discharge of the water take place at short intervals for some weeks, and then the funis umbilicalis protruded, without any exertion or any pains to rupture the membranes, which is a demonstration that the membranes had been previously open and that the discharge of liquor did not speedily excite labour."

There is abundant evidence to prove that, as a general rule, the discharge of the liquor amnii is followed by labour within a few days. But some authors, and among these Dr. Radford, very recently ('Brit. Med. Journ.,' February 3rd, 1872, p. 127) record it as the result of their experience that the rule which I have designated general is invariable, and throw doubt on the accuracy of observations which are adduced as evidence of the occasional prolongation of pregnancy for several weeks after such partial evacuation of the uterus. That such prolongation of pregnancy does occasionally occur can be absolutely proved. A medical friend of my own, in charge of a ward for diseases of women in a great public institution, mistaking a pregnancy for an ovarian dropsy, set about the operation of paracentesis in the usual way, and only desisted after a large quantity of liquor amnii had been drawn off, admonished by the motions of the fœtus striking

against the canula. The woman and her child were none the worse of the operation. The uterus again enlarged, and pregnancy was continued for about a month afterwards. This is not the only case of the kind that I have known; and, indeed, reflecting on such cases of error and on others of intentional tapping of the uterus through the abdominal wall, I have more than once contemplated a like operation in cases of hydramnios.

It appears to me to be probable that in the common cases of rupture of the membranes and discharge of liquor amnii where labour does not supervene at once or within a few hours the delay is only until the evacuation is almost complete, or, in other words, till the uterus is in close contact with the fœtus and irritated by its hard irregular surface and perhaps by its movements. The liquor amnii, as in the case which I have narrated, and in others which I could cite, is not always all or nearly all discharged at once. Several days may elapse and many gushes occur before the discharge is as nearly complete as it can be without complete evacuation of the uterus. If the uterus in action causes the rupture of the membranes it will then probably evacuate itself almost completely of liquor amnii, and labour will probably be commenced very soon. But when the discharge takes place under other circumstances there may be retention of a considerable portion of the liquor, and its partial discharge in successive gushes may be produced by continued contraction, the result of the ordinary uterine contractions of pregnancy described by Braxton Hicks ('Transactions of Obstetrical Society of London,' vol. xiii), or by other causes, such as change of position. bearing down, or other muscular exertions.

In the case which I have narrated the discharge of liquor amnii, in occasional gushes, continued till labour came on, and long after it was evident that the uterus had been, for the time, as completely evacuated of this fluid as it could be. But this circumstance is easily explained by the accumulation of newly secreted liquor amnii. Indeed, while excessive secretion may have been the cause of the rupture of the membranes, continued secretion must have been the source

of the discharges which took place after the uterus reached its smallest dimensions. The amniotic membrane, whose structure has been recently so signally illustrated by the histological researches of Winkler ('Textur, Structur, und Zelleben in den Adnexen des Menschlichen Eies,' Jena, 1870), has the power of secretion and absorption in a high degree, and clinical examples of both of these processes are not infrequent. That freshly secreted liquor amnii may accumulate in the uterus is not more remarkable than its only partial evacuation in cases of accidental rupture of the bag during pregnancy or of ordinary rupture in the early stage of natural labour, or than the accumulation of urine in the bladder in some cases of vesico-vaginal fistula of considerable size. In my case the child survived while there was evidence of continued secretion by the amnion, and probably the life of the fœtus and its amnion is a necessary condition of continued secretion, but the settlement of this question by direct observations is desirable.

Two difficulties in the way of accepting the evidence adduced in favour of long delay of labour after nearly complete discharge of the liquor amnii are forcibly expressed by Mr. Bradley and Dr. Whitehead ('Brit. Med. Journ.,' January 20th, 1872). They consist in the belief that such sudden and nearly complete discharge of amniotic fluid would certainly bring on labour, and that the death of the fœtus should always follow such evacuation of the uterus before many days have elapsed. The former view is expressed by Mr. Bradley in the following words:—"I should think it most likely that one essential condition of such cases is that the rent in the membranes should be situated high up, so that all the liquor amnii does not drain away at once; for if such were the case, and the uterus were to firmly embrace the contained fœtus, it can scarcely be doubted that uterine contractions would ensue, followed by expulsion of the child." Bradley's opinion is confirmed and the latter view also expressed by Whitehead in the following terms:—"I do not think the fœtus could live many days in a sac without fluid and compressed by firm, tonic, muscular action."

Against such difficulties it is sufficient to adduce the evidence of well-attested facts, including those of uterine tapping, which I have in this paper mentioned. It is admitted that cases of prolongation of pregnancy after discharge of the liquor amnii for more than a few days are rare. It is only the occurrence of rare cases that has to be proved and, as far as possible, accounted for. Now, so far as the nearly complete absence of liquor amnii and the firm compression of the fœtus are concerned, we have an analogical illustration in a rare set of cases of which I have seen unmistakable instances, and of which many examples are recorded. These are cases of missed abortion, missed miscarriage, missed labour. In such the liquor amnii becomes absorbed; the uterus diminishes in bulk, becomes harder; the fœtus and membranes are compressed, not, however, by "firm tonic muscular action," and the supervention of labour may be delayed for weeks or months. In these cases the fœtus is, so far as I know, invariably dead and decomposed.

The survival of the fœtus in the cases which I have recorded or referred to is certainly very remarkable, and it would, no doubt, have been impossible if the uterus had been firmly and actively contracted. Firm tonic muscular action of the uterus after discharge of the liquor amnii would, no doubt, soon destroy fœtal life, and it would also lead, without much delay, to evacuation of all the uterine contents. That it was not firmly and actively contracted is proved by the absence of labour and the continuance of fœtal life. Firm compression of the fœtus may take place without active uterine contraction, and it is firm compression by active uterine contraction that is incompatible with the continuance of pregnancy or of fœtal life for any considerable time, not such mere firm compression as is seen in a case of missed miscarriage or missed labour. In such there is only the continued contraction necessary to keep the organ in contact with its diminishing contents, a kind of contraction that is observed during delivery and is distinct from active uterine pains.

A high position of a rent in the membranes and some sort of valvular action are cited by some authors in order to explain

the partial discharge of the liquor amnii and its repeated discharges; and it is well known that, with a view to desirable obstetric results, it has been recommended to puncture the membranes high up in order to secure only partial discharge of amniotic fluid. But such explanations are, I believe, chimerical. I know of no evidence whatever to show that accidental high rupture of the membranes was ever followed by the partial and repeated discharges supposed or expected to ensue. On the contrary I have known high puncture of the membranes, as in the cases of paracentesis of the pregnant uterus previously spoken of, followed by no discharge at all along the natural genital passages. It is easy to suppose a high puncture of the membranes and partial withdrawal of the liquor amnii; but that explains nothing whatever in the cases under consideration, for in them the discharge was effected spontaneously, and such spontaneous high rupture and discharge is at least very unlikely to occur, and has never been, so far as I know, shown to have occurred. Its occurrence may be admitted to be possible. I have already stated my views as to the explanation of partial evacuation of the uterus and repeated discharges, on a basis that appears to me better than a mere admission of possibility of high rupture and valvular action.

In the subject which has been discussed in this paper the great question for decision is, Why does not labour come on? Why do conditions which generally induce labour fail to do so in these rare cases? The same question forces itself on us in the remarkable conditions called missed abortion, missed miscarriage, missed labour. In our present state of utter ignorance as to the cause of the coming on of natural labour it is not to be wondered at that we cannot tell the cause of its failing to come on. But the two subjects may well be studied together, for it is highly probable that he who discovers the cause of natural labour coming on will also be at the same time able to explain why, in the rare abnormal cases to which attention has been here drawn, labour does not come on.

Numerous lines of inquiry have been followed with a view

to discovering the cause of the coming on of labour. To me there appears at present no more likely way of achieving this grand result than the circuitous one of endeavouring to discover the cause of labour not coming on. In physiology we desiderate the cause of natural labour. In pathology we desiderate the cause of labour occasionally not supervening soon after discharge of the liquor amnii; occasionally not supervening soon after the death and discharge of the fœtus in the early months, not supervening even when the secundines are already putrid; occasionally not supervening soon after death of the fœtus or after absorption of the liquor amnii in advanced pregnancy; occasionally not supervening although the uterus is distended by a hydatigenous ovum which is forcing it to grow and expand at a rate of excessive and almost incredible abnormal quickness.

Dr. Snow Beck mentioned two cases where evacuation of the liquor amnii had taken place some time previous to labour. One case occurred some years ago; a lady, about forty years of age, who had had four children, when about six months pregnant was suddenly taken with a copious discharge of clear watery fluid, accompanied with some pains in the stomach like the commencement of labour-pains. No cause could be assigned for this discharge, which occurred in the middle part of the day whilst she was in her bedroom. She considered that labour was coming on and sent for her medical attendant, who had great experience in midwifery and who also considered that a premature confinement was at hand. The usual preparations were made, the lady was not left all day, and the gentleman remained in the house during the night. The next day was also spent in watching, the lady being kept in bed, with moderate diet. It was ascertained that the head presented. Nothing further, however, took place; the lady was first visited night and morning, then each day, and, as time progressed, after an interval of some few days. The lady did not experience any further inconvenience than being kept in bed, appeared in good health, and afterwards got up each day and lay upon a couch in the bedroom. Matters went on in this way for three months, when the lady calculated she was at the full period. Labour-pains gradually came on as at her previous confinements. Dr. Snow Beck was in attendance; the orifice of the uterus dilated, and the finger came directly against the hairy scalp of the child. No escape of amniotic fluid took place, the vagina

was lubricated with the usual amount of mucous secretion, the child was born without assistance, the placenta came away naturally. The lady made a usual recovery; the child lived and grew up. The case was the cause of much anxious watching and many consultations, and there was not any reason to doubt the fact that the liquor amnii had escaped three months previous to the confinement without producing any perceptible alteration in the course of the pregnancy.

The other case occurred in a lady thirty-six years of age, who had had six children and two premature confinements. She had suffered from phlegmasia dolens after the last two previous confinements, followed by enlargement of the uterus. She was from four to five months pregnant, and during this period had suffered much from frequent discharge of blood, which varied a little as she rested or took exercise, the last being said to sometimes amount to as much as a pint after walking a little distance. There was also considerable dyspeptic derangement and much general distress. On October the 18th or 19th, 1871, she was suddenly seized with a discharge of two or three quarts of perfectly clear pure water, which did not produce faintness, and continued more or less all night, requiring the use of two dozen diapers, but ceased the following morning. She was about all the following day as usual, but about 5 p.m. the gradual flow of blood returned, continued all night, and ceased in the morning. This continued to recur each day about the same time, continuing during the night and ceasing each morning, with the interval of one week, until December 19th, when she was prematurely confined, and died from hæmorrhage two hours after the removal of the placenta. During the week of intermission nothing but thick black and very offensive matter came away, both day and night. Very little or scarcely any discharge took place at the confinement, which was rather more than ten weeks after the sudden escape of the first two or three quarts. It is difficult to say where this fluid came from, which passed away each night for so long a period and in such abundance. The lady suffered much from inward piles, the uterus and vagina were much congested, and the external parts greatly swollen the last six or seven weeks. It is scarcely possible to suppose that the flow came from the inner surface of the fœtal membranes, and if, as is more probable, it was an exudation from the vagina, it may be supposed that the great venous congestion of the pelvic organs was relieved by the rest during the night and was again increased by being about during the day, which increased congestion induced the watery discharge each night. There is no reason to suppose that either set of glands in the uterus was involved in the production of this nightly flow.

Dr. Rasch said he found the characteristic smell of the liquor

amnii a very valuable help to diagnosis in cases of alleged discharge of the waters.

Dr. Barnes observed that this able paper suggested abundant material for reflexion and discussion. The case of Dr. Snow Beck might be explained as follows. It was well known that cases occurred in which copious watery discharges were rapidly poured off in non-pregnant women as well as in the pregnant. Hegar had described an hypertrophied condition of the glands of the uterine mucous membrane as existing until an advanced period of gestation. When there was an hypertrophied condition of the mucous membrane in the non-pregnant state the glandular structure probable partook of the hypertrophy, and thus became fitted to throw out a large quantity of watery fluid. He was satisfied that it was in this way that many cases of hydrorrhœa in pregnancy arose, especially in the early months, whilst there still existed a free decidual surface. It was not very uncommon for a copious discharge of water to escape two, three, or more weeks before labour, and when labour did occur the membranes burst and discharged liquor amnii as usual. He did not believe in the rupture of the membranes and the rent healing. He might offer a speculation in relation to the cause of labour. Why labour did not so readily come on under provocation as from rupture of the membranes before the natural term of gestation, was because the nervous centres had not yet attained that remarkable degree of irritability which characterised them at the full term. There was a less ready response to excito-motory stimulus. Hence when the uterus settled down upon the fœtus the contact failed to excite in the non-irritable nervous centres active reflex contractions, as it almost surely would do at term. The necessary irritability seemed to be acquired in women in whom labour was habitually induced prematurely.

A CASE OF UTERINE FIBROIDS COMPLICATING PREGNANCY.

By Henry M. Madge, M.D.

Mrs. R—, æt. 40, primipara, married about twelve months, always enjoyed good health, consulted me in September, 1870, for a gradually increasing enlargement of

the abdomen, which she said was not due to pregnancy. On examination I found the abdomen occupied by a series of tumours of sizes varying from that of a walnut to a large orange, all springing from an enlarged womb. She was rather a thin woman, and I was enabled to make out eight distinct swellings besides the womb. Three of the smaller ones were pedunculated, and when touched through the abdominal walls receded from the finger, just as a child's foot or arm would do when floating in the liquor amnii. The larger ones were more or less sessile, the largest being entirely so. This was nearly as large as the womb itself and was somewhat fixed in the left iliac region. After a few visits to the patient I was enabled to detect the fœtal heart. She had consulted several medical men, and, owing to the anomalous symptoms in the earlier stages of the pregnancy, various opinions were arrived at. She was told that it was a case of extra-uterine pregnancy ; that the smaller swellings were the child's limbs and the large swelling the head. She was also told that she was not pregnant at all, and that she might ultimately require an operation for the removal of the tumours. The usual signs of pregnancy, as regards the catamenia, morning sickness, and appearance of the breasts, were not well marked. The sounds of the fœtal heart, however, set the matter at rest. Meeting with such a large crop of fibroids associated with pregnancy I determined to watch the case with the view of noting their changes and behaviour before, during, and after labour. As the pregnancy advanced all the tumours increased in size, except the one on the left side, which was at first the largest. This remained throughout without much change. In the last month the abdomen was enormously distended, and presented irregularities on its surface corresponding to the site of the fibroids. The patient suffered but little pain or inconvenience except from the child's movements, which became very vigorous. Labour set in on January 12th, 1871 ; distinct uterine action came on very slowly, and in the afternoon of the 13th, although the head was low down, the os uteri was only about the size of a crown-piece. In the evening I gave

Tr. Opii ʒss, but notwithstanding this the pains were continuous, though weak and irregular, all night. Some of the tumours seemed to contract and get harder, like the uterus, during the pains. On the 14th, the os uteri being pretty fully dilated, I used the forceps and soon delivered the patient of a living child. After delivery the abdomen remained very large, as if there were another child, but as I was obliged to introduce my hand into the womb to remove the placenta I was able to satisfy myself that this was not the case. The walls of the uterus appeared to be full of nodosities and irregularities, and a good deal of blood was lost from imperfect contraction. Eventually the patient did well and was able to sit up on the tenth day. At this time the abdomen was only slightly reduced in size, but subsequently the reduction became more rapid. At the end of three months I could still count all the tumours that I had previously felt. The womb was still enlarged, and the tumour on the left was nearly as large as a cocoa-nut; all the other tumours were much smaller. In six months three of the smaller tumours had disappeared. The womb and the large tumour, with which it seemed to be now almost continuous, formed a mass above the pubes about the size of the womb immediately after delivery. The four smaller tumours had been lessened in size about one half since the last examination. I examined the patient a few weeks ago —that is, about sixteen months from the date of delivery. The uterus, with the larger fibroid attached, was still easily felt above the pubes, and, compared with the last report, only slightly lessened in bulk. Two of the smaller tumours, springing from the body of the womb, were still distinctly made out, but only traces of the others remained, one such trace being about the size of a bean. The patient is in good health and suffers no inconvenience from the presence of the tumours. She was quite unconscious of their existence before pregnancy. Unless she becomes pregnant again they will probably give her no further trouble, but in the event of pregnancy they would, no doubt, run the same course of growth and decay as before. Besides the tumours I have

described I have no doubt, from the feeling conveyed to my hand whilst in the womb, that there were several interstitial tumours, and it seems probable that so many abnormal growths, by altering the course of the uterine fibres, must have interfered with their contractile efforts and led to the feeble and irregular uterine action observed during the labour. When only one or two fibroids exist I have often seen labours completed in a comparatively easy and natural manner.

That in this case some of the tumours should have subsequently disappeared and some remained shows, I think, that they were not all exactly of the same nature.

Dr. Playfair said that Dr. Madge's case was of great interest to him, as affording farther corroborative evidence of the possibility of spontaneous absorption of fibroid tumours of the uterus, a subject on which he had formerly read a paper before the Society, and, farther, of the important influence of pregnancy, or rather of the involution of the uterus after delivery, in favouring the process, a point on which he had particularly insisted in his paper. It was satisfactory to find so carefully recorded a case brought forward, on the diagnosis of which the most sceptical could hardly throw any doubt. Although all the tumours had not disappeared in this case, some of them had, and the rest had materially diminished in size, showing that they had undergone the same process of involution as the rest of the uterine tissue, which, considering their identity of structure, was, after all, not so surprising. The number of carefully recorded instances of the spontaneous absorption of uterine fibroids was now so great that the possibility of the occurrence seemed to him (Dr. Playfair) as conclusively proved as any fact could be, or required to be.

JULY 3RD, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Wm. Michell Clarke, M.R.C.S. (Clifton), and James Ryer Thomas, L.R.C.P. Lond., L.R.C.S. Edin. (Tinnevelly, Madras), were elected Fellows of the Society.

IRREGULAR UTERINE CONTRACTION.

By E. H. TRENHOLME, M.A., M.D., B.C.L.;
PROFESSOR OF MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN, UNIVERSITY OF BISHOP'S COLLEGE; ATTENDING PHYSICIAN TO THE MONTREAL DISPENSARY, ETC.

THE practical importance of the subject which I have the honour to lay before you this evening must be my excuse for occupying your time. I trust that each member will thoroughly investigate and criticise what may be advanced, as it is well known that correct deductions for guidance in the treatment of disease can only be made from correct premises, the result of accurate observation.

Spasmodic contraction of the uterus is naturally divided into *irregular contraction* during the birth of the child, and *irregular contraction* during the delivery of the placenta.

1st. Irregular contraction of the uterus during the expulsion of the fœtus is recognised by short, partial spasms of the walls of the organ. These contractions accomplish but

little in the way of dilating the os or advancing labour. They do not occur regularly, either in respect to the space of time intervening between their return or their duration. By placing the hand upon the abdomen over the uterus we can frequently detect irregular and partial muscular contraction of the organ. The pains are of a short, sharp, and painful character, and also usually cause the patient intense anxiety and distress.

Upon making a vaginal examination you will find but slight bulging of the fœtal membranes during the pains, also, not unfrequently, an unequal dilatation of the muscular layers of the os uteri. The internal layer is least dilated, sometimes not more than half the extent of the external layer.

With regard to this last statement, I may say that the diagnosis is not always so easy as one would naturally suppose, as the internal layer of muscular fibres is thin, and might be mistaken for a thickened decidua.

When the finger has reached the os, and is attempted to be passed between the neck and the membranes, we encounter adhesion more or less firm and extensive between the opposed surfaces.

When the adhesions are on one side the os is found, not in the median line of the pelvis, but drawn away from the centre toward that side on which they exist. As a necessary consequence of such a condition of things there are obliquity of the womb and irregular oblique presentation of the presenting part at the brim of the pelvis, together with retarded engagement and its consequent results.

The existence of these adhesions is ascertained with but little difficulty, as the finger readily detects their presence, and also shreds of muscular fibres attached to the decidua. In these cases the membranes can be scraped by the finger-nail and the portions detached preserved for microscopic examination. I have upon many occasions removed in this way shreds from that part of the decidua which had been adherent to the uterus, both during the dilatation of the os

and after the removal of the placenta, and found them to be composed of muscular tissue.

The existence of the adhesions is also recognised by the fact that, when they are broken up by the finger, the protruding portion of the membranes increases in size rapidly; the uterus, which was oblique, soon returns to its central position; the presenting part engages; the irregular, ineffective, spasmodic contractions become regular and powerfully expulsive, and a tedious, lingering labour becomes a normal one, and is speedily brought to a satisfactory conclusion. I have but little doubt that more extensive and correct observation will demonstrate that the great majority of oblique presentations are due to this cause.

The manner in which these abnormal adhesions are produced, and the way in which they cause irregular spasmodic contractions of the uterus, are worthy of remark. In speaking of this matter we can arrive at probable conclusions only, and I shall therefore submit that these adhesions may be due to—

1st. A pathological condition of the inner surface of the uterus existing previous to conception; or,

2nd. To injuries of the parts concerned during gestation; or,

3rd. Result from partial, instead of complete, separation of the decidua having taken place before term, *i e.* that the ripening of the decidua has not been uniformly accomplished; or,

4th. To a combination of two or more of these causes.

We will now consider the value of these different hypotheses.

1st. In favour of the idea that these adhesions may be due to a diseased state of the internal surface of the uterus existing previous to gestation we have the well-established fact that a part or tissue once the seat of diseased action seldom or never regains its original state of perfect health, and is liable to subsequent derangement.

Experience teaches us to be careful in effecting the delivery of the placenta in those cases where we have encountered

strong adhesions in a previous labour, as we know such patients are obnoxious to them on a subsequent occasion.

2nd. Adhesions may occur during gestation as a result of local extravasation, either from shock, a plethoric state of the system in general and the uterus in particular, or by direct violence applied over the parts affected, as by a blow upon the abdomen; or, possibly, by injury to some part of the neck or lower segment of the uterus upon the brim of the upper strait of the pelvis. Such an injury as this might be caused by a false step, jump, or fall. For my own part I am of opinion that this is not an uncommon cause of such adhesions. This view is confirmed by the fact that in most of the cases of retarded labour due to irregular uterine contraction that I have met with the adhesions were situated within a short distance of the os.

3rd. The adhesions may be due to a partial ripening or want of that cell maturation by means of which the decidua is separated from the internal surface of the womb at term in natural labour, and which, by the way, is, I have no doubt, *the determining cause* of labour.

The strength of the attachment will determine the extent of the irregular contractions, and consequent pain and delay in parturition. The induction of labour at all where these adhesions exist is probably due to the separation already mentioned having taken place to a sufficient extent to cause uterine irritation and subsequent muscular contraction of the walls of the uterus. This view of the case does not require us to look for or suppose a pathological state of the membranes of the uterus or the surface of the uterus itself, but regards it simply as due to a lack of that perfected development of the mucous membrane which is usually completed at the end of the ninth month.

4th. Lastly, these adhesions may be the result of two or more of the above-named causes. There may be a predisposing plethora of the vascular system, accompanied by shock or blows, or, a weakened state of the walls of the uterus the result of former disease or injury, and this by a subsequent

injury, may be the cause of local inflammation, effusion of plastic lymph, and subsequent adhesions.

As the probable causes of adhesions have been alluded to, it is necessary now to say a few words as to the manner in which they probably cause irregular spasmodic contractions of the uterus and retard labour.

The irregular action spoken of may be due to some abnormal condition of the nerves of the uterus or of its muscular structure.

1st. The nerves may be at fault, *i.e.* there may be hyperæsthesia of some branches of the nerves, thus inducing hasty irregular contraction, or there may be paralysis of some of the nerve branches, and in this way allow of irregular muscular action; or,

2nd. The cause of the spasmodic contraction may be due to some abnormal condition of the muscular tissue, apart from any fault in the nerves, by which it fails to respond, in parts, to the ordinary nerve stimulus; or,

3rd. The cause of the irregular action may be due to adhesions of the apposed surfaces of the decidua and uterus. Thus, the decidua being closely applied to the muscular surface, and the adhesions preventing the membranes from protruding, might act in a mechanical way and thereby check the shortening of the muscular fibre, the attempt at contraction being met by the counter-extension of the decidua; or, perhaps, the muscular structure connected at the points of adhesion may, by being lacerated or irritated during the pains, cause unequal and undue tension of some muscular fibres, the parts thus injured acting as direct excitants, and in this manner causing that unequal short spasmodic form of uterine contraction which characterises tedious labour.

Of these hypotheses I am inclined to think that the last is most probably the correct one. I suppose it will be conceded by every one that the whole uterus responds equally and regularly to the stimulus that induces labour, unless there is some abnormal condition of the organ, such as defective innervation, excessive innervation, or muscular change of some part of the organ, as before mentioned.

As to defective innervation I shall not speak. The fact that tedious labour, with adhesions, &c., occurs with women who both before and afterwards have natural labour, shows that it cannot be due to nerve disease. Where one good and sufficient cause for the production of any phenomenon is known to exist there is no need to go beyond it, and recognised tension and laceration of the inner layer of muscular fibres, at the points of adhesion, are enough to account for irregular action of the uterus. The effect of these adhesions, where they exist—say on the right side and near to the os—is to interfere with the regular action of the muscular contraction, for the reasons already mentioned, and at the same time cause a very incomplete and imperfect expulsive effort. The steady protracted bearing-down pains so desiderated are wanting, and grinding pains take their place.

We all know that the decidua with its contents must be elongated in order to adapt itself to the diminished capacity of the uterine cavity during a spasm; that the waters must escape or the membranes be protruded through the os and a pouch of fluid occupy the vagina before any progress is made towards the delivery of the fœtus.

This being the case, lateral adhesions must interfere with the descent of the membranes, and cause the bag of waters to be formed at the expense of the membranes, which slip down from the side on which there are no adhesions.

The formation of this pouch in this manner in its turn necessarily carries the lower segment of the uterus, with the os, toward the side on which the adhesions exist. Thus, in a first vertex presentation of this kind the left side of the presenting part would be driven into the cavity of the pelvis and made to occupy a lower level than in normal cases. The expulsive effort of the uterus is lost to a great extent, on account of the fœtus not being made to engage in the axis of the brim of the pelvis. When we consider the irregularity of the contractions, and the great disadvantages under which the expulsion of the fœtus has to take place, we find abundant cause, not only for the prolongation of labour, but also for the

anxious and exhausted state of the patient herself. The labour-pains in these cases are most severe, and this in my opinion is due to the muscles acting contrary to each other and tearing themselves asunder, as has been already mentioned when speaking of the unequal dilatation of the os. The irregularity of the contractions continues till the adhesions are separated, or the dilatation of neck has been slowly and painfully accompanied by the inoperative contractions of the organ; or until the membranes have been ruptured, so as to permit the child to glide over the membranes, seeing the membranes will not glide over the surface of the uterus, as they should do, to allow the child to be born.

To break up the adhesions is an easy matter in those cases where they are situated near the os. The finger gently introduced around the neck, between the membranes and the uterus, readily accomplishes the desired result.

Where the adhesions are beyond the level of the finger I do not think it advisable to attempt the separation by instrumental means, but rather to rupture the membranes at once, as by this means we effect the chief thing to be desired, viz. the supervention of normal labour. In some cases, after the adhesions have been broken up as far as the finger will reach, you will find that the os will rapidly dilate, and in a few minutes the finger can be still further introduced and the detachment completed.

The following case is given, one out of many, by way of illustrating what has been said:

Mrs. L—, æt. 20, first pregnancy, has been in labour last four and a half hours; pains irregular and spasmodic, and accompanied with intense suffering. On examination found os dilated to the size of a shilling-piece; membranes adherent on the right side, and neck of uterus turned the same way.

A somewhat thick layer of muscular fibres covered the membranes spread over the dilated os. As I could not reach all the adhesions, the membranes were ruptured, after which the pains became regular and powerfully expulsive, the os dilated rapidly, and the child was born in less than two hours.

By way of illustrating another class of adhesions, I give the case of a Mrs. R—, æt. 21, first confinement.

On examination found the womb almost on the floor of the pelvis, and os dilated to size of a shilling-piece; has bad grinding pains; little expulsive power for the last eight hours. On introducing the finger no adhesions were felt between the mucous membrane and uterus. Being somewhat in doubt as to the cause of the irregular contractions, I examined more carefully, and then found that there were adhesions between the posterior part of the neck of the uterus and vagina. The adhesions did not exist over the anterior third of the neck. The separation of the parts was easily accomplished, when the expulsive power of the pains was greatly increased, the os dilated more rapidly, but the membranes did not protrude. With the dilatation of the os the womb descended upon the floor of the pelvis. I then found adhesions between the mucous membrane and the uterine surface, and when these were broken up the labour progressed more rapidly, although I was finally obliged to deliver by the forceps, as the head presented in the third position (vertex) and the woman was too weak to complete the labour alone. This case is mentioned, not only on account of its unusual character, but also because it shows that external adhesions may interfere with labour as well as adhesions between the mucous membrane and the inner surface of the womb.

Before closing these imperfect remarks it might not be amiss to say that the cause of gestation being of shorter duration in first pregnancies is probably due to a more rapid cell degeneration of the decidua, combined with a sensitive state of the muscular surface of the cavity of the womb which favours the induction of muscular contraction before the decidua is completely detached. It also explains why we have trouble in delivering the placenta in many instrumental cases.

The adhesions render the contractions abnormal and inefficient, and this condition renders the forceps necessary to complete the delivery, while the adhesions remain as before stated, to give us further trouble.

The effects of adhesion upon the delivery of the placenta are worthy of consideration, but as I have not had any cases illustrating my views upon the subject I shall not longer occupy your attention. We would have no difficulty in attributing hour-glass and spasmodic contractions of parts of the uterus upon the placenta, or itself, to the same cause that induced such contractions during the first and second stages of labour. In addition to the cause of such contractions which have been spoken of already, we find there is the possible irritating effect of the placenta when adherent to the uterus. The mass of the placenta being somewhat firm, and the uterus contracting upon it, might easily cause laceration of muscular tissue, and thus originate the hour-glass contractions. Also, the contractions might be due to the effect of lacerations of the tissue of the muscular surface during labour, which had left the parts irritable and ready to contract as soon as opportunity offered.

As to the treatment of retained placenta I have nothing special to say. We should follow the recognised mode of dealing with such cases, and, when possible, effect the detachment and removal of the entire mass with its membranes.

The PRESIDENT considered Dr. Trenholme's paper opened up a new point for clinical investigation well worthy of further attention. He had no doubt but that the adhesion in retained placenta was the determinor of the position of uterine irregular contractions; it was contracted almost always below this. But there was also a condition which was not dependent on placental adhesion. He had several times noticed in passing the hand within the uterus that the walls would be in one part hard and firm, while at another relaxed and flabby; and then gradually the firm part became relaxed, while the relaxed part would become firm.

ON POST-MORTEM PARTURITION WITH REFERENCES TO FORTY-FOUR CASES.

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Cases of parturition occurring after death, without manual interference, are very rare. So rare, indeed, are they that when one takes place even medical men have sometimes doubts as to whether such a phenomenon has ever before been observed.

A case which happened in Ireland in March of the present year has again directed the attention of the profession to this subject, and many letters containing additional information have appeared in the medical journals. Perhaps, as the Fellows have not yet, at any previous meeting, directed their attention to post-mortem parturition, and as there are many points of interest upon which their opinions would be of great value, the time of the Society might not be unprofitably employed in glancing rapidly at the recorded cases and examining the accuracy of the deductions which various authors have made concerning them.

Case 1.—Rudolph Camerarius[1] tells us of a Spanish inquisitor who caused a pregnant woman to be hanged in 1551. Four hours after the death of the unhappy mother, while still hanging on the gibbet, two living children fell from her womb.

Case 2.—Diomedes Cornarius[2] writes of a certain woman of Madrid, of the illustrious family of Lasso, who, having been reputed dead, was carried to the place of sepulture and there shut up and left. Some months afterwards, the tomb being again opened, the corpse was found in the position in which it was left, and, besides, a dead infant which had been born since the burial.

[1] 'Sillogæ Memorabilium Medicin.'

[2] Nymmanus, 'De Vita Fœtus,' &c., p. 29.

Case 3.—G. A. Reiss[1] says the wife of François Arevallos de Suesso fell ill in that town towards the last months of her pregnancy. Being dead a few days, or having been reputed so, she was buried. The husband, who had been diligently sought for in a distant place where he had gone on business, arrived towards the middle of the night, learning that his wife, whom he loved much, was buried, he wished the satisfaction of seeing her once more. He went to the church and caused her to be exhumed. Scarcely was the coffin opened when the cries of a child were heard. Every one was seized with astonishment: the justice, the priests, and many others were called, and when the shroud was lifted the head of a child was seen, who was endeavouring to extricate the rest of its body. It was taken away alive, and lived long after under the name of "Fils de la terre."

Case 4.—Dr. Harvey[2] asserts the following "A certain woman here amongst us (I speak it knowingly) was (being dead over night) left alone in her chamber, but the next morning an infant was there found between her legs, which had by his own force wrought his release."

Case 5.—Rolfinkius[3] relates the case of Anna H— which occurred in Silesia. She began to be in labour at 5 o'clock in the morning on the 14th February. During its progress, which was difficult and painful, she was seized with an epileptic paroxysm, and died before the child was born. The body was placed in a cellar until the day of burial, which was to take place on the 19th. On that day two well-formed children, a boy and girl, were found dead upon the bier.

Case 6.—Bartholin[4] tells us of a woman who died undelivered, three midwives having exhausted their art in

[1] 'Elysius Corpus jucundarum quæstionum.'
[2] 'Anatomical Exercitations,' 1653, p. 492.
[3] 'Dissert. Anatom.,' c. xxx.
[4] 'Ephemerid Germ., D. 1, An. III.

attempting to deliver her. She was washed and laid out in the usual way, when behold, forty-eight hours after death, the abdomen so swelled as to rend the graveclothes in which the body was sewed and a copious flow of lochia was observed. The women standing by, astonished, separated the legs of the corpse and saw a dead but perfectly formed male child in the act of coming forth.

Case 7.—Bonetus[1] tells us of a case which occurred in Brussels in 1633. The woman died undelivered in convulsions on Thursday. On Friday froth flowed from the mouth, and the abdomen was observed by those sitting near to move. On Sunday, about 10 a.m., a flow of blood caused those attending to uncover the corpse, when between its thighs a child still warm was found hanging out.

Case 8.—Percival Willughby[2] writes, "Emma, the wife of Thomas Toplace was five days in labour. The sixth day shee had a medicine given to her to ease her pains by a doctor of divinity (Dr. Kettleby), pretending some small skill in physick. After the taking of the medicine in the evening shee was supposed to bee dead, and after nine o'clock that night shee was buried. As shee was carried to the grave some thought they heard a rumbling in the coffin. A noise was heard like the breaking of a bladder, after which followed a noisome smell. She had an ill-conditioned man to her husband, that frequently gave her evil words and oft blows with them. Her husband, with his mother and the midwife, with some other women, made haste to bury her, having, among other things, filled her mouth with hurds (tow). Several women were much troubled at her hasty burial, and thought she was not dead. Among this company there was one, Anne Chadwick by name, that returned to the grave, and laying her ear to the ground shee heard a sighing, as it might be of one dying in that grave. A souldier being with her heard the same, and he affirmed,

[1] 'Med. Septentz.,' P. II, Obs. xxx.

[2] MS. Copy of 'Country Midwives' Opus-culum,' in the possession of the writer.

besides the sighing, that hee heard the crying of a child. They went to Mr. Legg, a justice of the peace in that town, and told him of it, as also the minister and others, what noise was heard in the grave, and Anne Chadwick said that shee believed that the woman was alive. The earth was cast off from the coffin, and the coffin was found somewhat opened where formerly the bords were joined together with a ridge at the top, and the coffin was hot. After that it was opened the woman's hand was seen bare, and some saw hurds lying on her breast and in her hand, with which her mouth had been stopped by her husband's friends. And it was believed that the buried woman had pulled those hurds out of her mouth with her own hand after that shee was interred. Another woman put down her hand and found a child delivered in the coffin, and descended as low as her knees or lower, with one hand in the mouth and the other extended by the side; and the after-burden was also come from her. Her husband, with his mother and the midwife, with others which laid her forth (after her supposed death), were much displeased that the grave was opened, and at the murmuring of the people he gave threatening words against some of the company; but at last hee thought that it was his best way to bee quiet and to let all their words and deeds sleep with his deceased wife. Elizabeth Shent, with her mother, Anne Chadwick, with others, affirm these passages to be true, and the coffin was left open all night that the bodies of the mother and the child might be seen by all those that would look upon her. Mr. Abraham Mercer (who was lecturer at Ashburn in Darbyshire where this occurrence happened) also took a certificate out of the parish register book, where it was thus recorded: '*April ye* 20, 1650, *was buried Emme the wife of Thomas Toplace, who was found delivered of a child after she had lain two hours in the grave.*'"

Case 9.—Hermann of Berne[1] cites the case of a young woman who died of nervous fever in the sixth month of

[1] 'Med. Chir. Zeitung. von Salzburgh,' 1824.

pregnancy; on the eve of burial, when her body had far advanced in putrefaction, a loud sound was heard and an unbroken ovum containing twins was found to have been discharged. The placenta also showed signs of putrefaction.

Case 10.—Dr. Naumann[1] mentions a woman who died during labour in the summer of 1802. No attempt was made at delivery, and putrefaction of the body of the mother commenced. On the evening of the second day the child and placenta were found expelled.

Case 11.—In Stark's Archives is a case of spontaneous evolution and birth of the child taking place after the death of the mother.

Case 12.—Dr. Richter, of Weissenfels,[2] reports the case of a woman, æt. 45, who was seized on Monday at 8 p.m., in August, 1861, with fits which occurred every five minutes. At midnight, after a remission of two hours, she was attacked with severe pain and tried to jump out of bed. She was held back and remained unconscious till 5 a.m. on Tuesday, when she died. Labour had not commenced. The body was washed and laid out, and in the evening was removed to another room. Putrefaction set in rapidly, and a watery discharge appeared beneath the legs of the corpse. The nurse separated the thighs on Thursday evening, sixty hours after death, but found nothing unusual. On the following day, the fourth after death, when arrangements were made for placing the body in the coffin, there was found lying between the thighs of the corpse the dead body of a child in a partially putrefied state. It was well developed and about the eighth month of gestation; with it were lying the umbilical cord and placenta. Some water had flowed from the outlet. The body was livid, and the abdomen, though smaller in size, was still distended with gas.

Case 13.—Johannes Mathæus[3] recites the case of the wife

[1] 'Hufeland's Jour.,' Band 23.

[2] 'Casper's Vierteljahrschrift,' &c., vol. xix, p. 163.

[3] 'G. Nymmaus de vita fœtus,' &c., p. 30.

of Simon Kreuter, of Weissembourg, who died during labour and was buried undelivered. After some hours a sound was heard about the tomb. It was immediately opened and the mother was found dead, but the child, a girl, was discovered almost rolled down to the feet of the corpse, alive and well.

Case 14.—Henricus Stapedius[1] writes to G. Fabricius of a pregnant woman who died suddenly of an acute disease and was placed in a coffin. The next day a fœtus was found between the thighs of the mother dead, but whose life, the author thinks, might have been preserved.

Case 15.—Schenkius[2] mentions a woman who died about 5 o'clock in the afternoon, and 3 o'clock the next morning the bystanders heard a great crack, when a child was born dead, having two fore teeth.

Case 16.—E. Hagendorn[3] says a woman died in labour on January 12th, 1683, and some hours after a living child was born and was baptized.

Case 17.—Veslingius[4] reports the case of a woman who died on the 6th of January, 1630, of an epilepsy, and on the eighth day a child was born.

Case 18.—Georgius Dethardingius[5] mentions a healthy child which was born half an hour after the mother's decease.

Case 19.—Ido Wolfins[6] says a woman died in labour in July, 1667. Six hours after her death the husband perceiving a motion in the abdomen called others to see it, and would have had the Cæsarean operation performed, but was hindered by them. A child, however, was brought forth dead eighteen hours after the woman's decease.

1 'G. Nymmaus de vita fœtus,' &c., p. 30.
2 'Obs. Medic.,' Lib. IV, de Partu, Obs. 14.
3 'Hist. Med. Physic.,' Cent. 3, Hist. 13.
4 'Obs. Anatom.,' 7.
5 'M. N. C.,' Dec. 3, An. 7 & 8, Append., p. 77.
6 'Obs. Chirurg. Medic.,' Lib. I, Obs. 41.

Case 20.—Dr. Hoyer,[1] of Mulhausen, speaks of a woman who died in labour, and whilst being conveyed to the grave expelled, with noise and a great quantity of water, a child, having its mouth open and tongue protruding.

Case 21.[2]—On Sunday, August 12th, 1759, the wife of one Edw. K—, of Warwick, was taken in labour about 5 o'clock in the morning; the midwife who attended her, after giving her all the assistance in her power, believed her to be dead, and then left her. About 5 in the afternoon the dead woman was put into a coffin, with a shroud over her. The next morning, the nurse going into the room where the corpse lay, she fancied she saw something move the shroud up and down in the coffin; she ran away much frightened to acquaint the people of the house below, who immediately went upstairs with her to examine what it could be; when, turning down the shroud, to their great astonishment, they saw a live child grovelling in the sawdust, which had delivered itself from the corpse as it lay in the coffin. As soon as their surprise was over they wrapped the child in flannel and took all possible care to preserve it, but it died before they could dress it.

Case 22.—Valerius Maximus[3] tells us that Gorgia Epirota's mother, having died undelivered, was being carried to the grave, when a sound was heard which induced those present to open the coffin, when between the legs of the mother, who had been a long time (jam diu) dead, a live child was found, who was called Gorgia, whence arose the proverb, "Gorgiam prius ad funus elatum, quam natum fuisse."

Case 23.—Burns[4] says, "An instance is lately related by Dr. Ebel where the uterus expelled a child after the interment of the mother, and the fact was discovered by raising the body for examination owing to a suspicion of murder.

[1] 'Foderé,' vol. ii, p. 11.
[2] 'Gentleman's Mag.,' vol. xxix, p. 390.
[3] Lib. 1, cap. ultimo.
[4] 'Manual of Midwifery,' 1841, p. 266.

Case 24.[1]—"The wife of a gamekeeper, near Reigate, a girl of fifteen years old, being with child and hourly in expectation of being brought to bed, was seized on Sunday morning last with convulsion fits, in which dreadful situation she remained till the Monday morning following, when she died; the fourth day after her decease the child was born perfect, but dead."

Case 25.[2]—"An inquisition was taken on the body of Hannah H—, wife of Mr. H—, of 65, Turnmill Street, Clerkenwell. She was in the eighth month of her pregnancy, and was in good health and spirits on the Saturday night, when she went to bed without any complaint. On Sunday morning, between 6 and 7 o'clock, she awoke and complained of the cramp in her legs; but she got better in a few minutes by having them rubbed. At 7 o'clock she arose, and was in the act of getting out of bed, when she exclaimed, 'Oh! my stomach,' and fell on the bed and expired. Mr. Austin, surgeon, of Red Lion Street, came directly and bled her, and other means to recover her were used, but without success. About the middle of the day of Monday the body was seen, and was then undelivered, nor were there any signs of it. Between 6 and 7 o'clock on Monday night Ann Terry was walking on the side of the bed on which deceased lay, and observed the body move and the clothes lifted up. She was so terrified that she fell into a chair almost insensible; she was taken out of the room and told that what she said she saw was only her fancy. No one went to see the deceased until the next morning, when she and another person took the clothes off the deceased and found she was delivered of a child, which was lying on the right side of her quite dead and cold. On Tuesday the body of the deceased and child were quite black and so changed that the features of the face of the former were scarcely distinguishable.

"The late Dr. John Clarke in his lectures on the physiology of the uterus relates a somewhat similar circumstance;

[1] 'Bell's Weekly Messenger,' September 26, 1802, No. 337.

[2] 'Medical Repository,' 1817, vol. viii, p. 353.

but we do not remember the particulars attending the case."

Case 26.—Ryan quotes a case from a French medical journal[2] in which "several witnesses attested that a woman who died at 7 o'clock a.m., and appeared so in the evening, was found to have given birth next day to an infant."

Case 27.—Dr. Bedford,[3] of Sydney, reports the following case: On the 3rd June, 1864, he examined the body of a woman, aged 37, who died on the 27th May, thirty-four miles from Sydney. She had died undelivered of her seventh child, and the body had been exhumed, a question of malpractice having been raised. The abdomen was found much distended and the body of a male child was discovered between the thighs of the deceased—the head towards the feet of the mother and the feet under the uterus, which was inverted, with the placenta attached. Transverse rupture of the uterus about six inches long had taken place above the cervix; the uterus was not contracted.

Case 28.—Mr. F. J. Dillon Lanigan[4] has lately recorded the case of a woman who was in labour on the 23rd October, 1862. "The doctor was sent for, but on the road to see her he was informed the woman was dead and undelivered. Her husband solemnly and confidentially told me afterwards that she, as customary, was after death washed, laid out, and waked for two days, and when going to coffin her, on removing the covering the child was found in the bed."

Case 29.—Mr. C. H. Roach[5] gives the following case:—"On the 4th January, 1869, I was called to remove a child from Mrs. R—, who died at 3 a.m. undelivered; being inclined to take advantage of the dissection, I attended immediately, but some members of the family of the deceased

[1] 'Principles of Midwifery,' 1828, p. 446.
[2] 'Jour. Univ. Med. des Sc. Med.,' tom. 7, p. 249.
[3] 'Guy's Hospital Reports,' 1864, vol. x.
[4] 'The Medical Press and Circular,' April 3, 1872.
[5] Ibid., April 17, 1872.

objected to the operation, consequently I did not interfere. From what I could learn, the woman, aged 35 years, primipara, was forty-eight hours in labour; the pains were severe and quick in the beginning; grew weaker and less frequent until they ceased altogether in the morning she died; she then fell into an apparent sleep or syncope from exhaustion, from which she never recovered. At 9 a.m. on the following day (thirty hours after death), when the body was being placed in the coffin, there was expelled a fully developed child with secundines."

Case 30.—Dr. A. C. Swayne[1] published in March of the present year the following case:—"On the evening of Thursday, the 14th of March instant, Eliza M—, the wife of a farmer residing near Kilronan, and the mother of seven children, was seized with the pains of labour. The midwife, who had attended her in all her previous confinements, was sent for, and was with her soon after. She continued in attendance during the night and until about twelve noon on the following day, when the sick woman called out for the priest and doctor. They were both sent for, and arrived in the course of two hours, and on their arrival they were informed that Eliza M— was dead, and that she died undelivered. It subsequently appeared that neither gentlemen saw the deceased. On the following Sunday, the 17th, the deceased was interred, contrary to the advice of the police, in Kilronan graveyard. In the meantime information was conveyed to J. P. Peyton, Esq., one of the coroners for Rosscommon, and he decided on holding an inquest. Accordingly, on Monday, the 18th inst., a jury assembled; the body was exhumed and duly inspected by them. The coroner directed me to make an examination. I proceeded to do so under the full impression that the woman was undelivered. On raising the shroud in which the body was enveloped, I was much surprised to find a well-developed male infant lying on and parallel to the lower limbs of the deceased, with the head towards the feet of the latter, and

[1] 'The Medical Press and Circular,' April 3, 1872.

the feet of the infant about eight inches from the vulva. The cord and placenta were attached to the infant, but entirely unconnected with the mother. On examining the mother, who appeared to be a large, well-made woman of about forty years or so, I found the uterus prolapsed and a large rent extending from the os for about five inches through its body. The abdomen was much distended, apparently with gas. Six apparently credible witnesses swore positively that the woman died undelivered, and that the body was washed after death, that she was then undelivered, that she was placed in her coffin undelivered, and one witness swore that after deceased was coffined she (witness) was sitting near the coffin, when she heard a dull rumbling noise proceeding from inside the coffin, and that this was followed by a gush of blood through the latter. This latter evidence, however, does not appear to have been corroborated by the other witnesses who were in the room at the same time."

Foderé[1] says several labours have taken place spontaneously after the decease of the mothers by the expulsive force alone of the uterus, in which the organic action is conserved after death has taken place in the rest of the body. Bemfer has reported eleven examples, Hunter[2] (William) two cases, and Hartemann[3] one.

The writer has not had the opportunity of reading the fourteen cases mentioned by Foderé; the foregoing, however, are more than sufficient to prove that a fœtus may be expelled from the uterus after the death of the mother without the intervention of art. Granting this fact, then, let us examine the mechanism of post-mortem parturition.

Three theories have been propounded:—First, that it is produced by the ordinary contractions of the uterus, which retains its vitality later than the other parts of the body. Second, that it is due to the muscular contraction called rigor mortis. Third, that it is the result of pressure upon

[1] 'Medécine Legale,' vol. ii, p. 11, *note*.
[2] 'Bulletin de Sc. Méd.,' tom. 5, No. 32, p. 339.
[3] 'Act. Natur. Curios.,' Decuria II, An. 3.

the uterus caused by the accumulation of gases of decomposition in the abdomen.

Either the first or last of these theories is usually adopted. The second is not so plausible, for, granting that a contraction of the uterus may take place after death similar to that which occurs in the muscles of the limbs, this contraction would scarcely be sufficiently persistent to cause extrusion of the fœtus.

The most frequent cause is doubtless that which results from the process of putrefaction, which often commences rapidly when death has been sudden. Its mode of action is very obvious. It is simply the mechanical displacement of fluid and solid matters by gaseous accumulations similar to the post-mortem expulsion of fæces and urine, or the projection of a shot from a gun.

In support of the third theory many interesting facts have been recorded.

Baudeloque[1] found on opening the body of a woman that he had delivered immediately after death the womb contracted upon the placenta, which he had not thought it necessary to extract with the child. Arbeiter[2], three quarters of an hour after a woman had died undelivered, extracted a child by turning and took out the placenta. During the operation the uterus was flaccid; when emptied, however, it contracted to the hard ball usual after normal delivery. Leroux[3] says that he perceived, in delivering a woman who had been dead more than a quarter of an hour, that the womb contracted as the child left it, and that it preserved as much solidity as if the woman had been alive. When he proceeded to extract the placenta the neck of the uterus so much resisted the introduction of his hand as to lead him to doubt the reality of her death. Burns[4] also states his belief that "the uterus may live longer than the body;" and Nysten has shown that irritability of the

[1] 'Dictionnaire des Science Médicales,' vol. xix, p. 388.

[2] 'Monatssch. f. Geburtsk.,' April, 1862.

[3] 'Traités des pertes de sang.'

[4] 'Principles of Midwifery,' p. 446.

muscular fibres may exist after death for forty-five minutes in the stomach, an hour and a half in the œsophagus, and still later in the heart. It is not improbable that this same contractile irritability may exist in the uterus even later still, but it is difficult to conceive what excites it to action unless it be, as Harvey thought, the struggling of the imprisoned fœtus. Most writers limit the time during which parturition may take place after death from vital muscular contractility to two hours.

A question of great interest and one intimately connected with the present subject is the length of time a child can live after the death of its mother without breathing. Dr. Brunton[1] gave us, last year, an account of a fœtus rescued alive after having been confined in the membranes a quarter of an hour after birth; and Wrisberg[2] cites three cases of infants who were born enclosed in the membranes; they lived, the one seven minutes and the two others nine, while thus enveloped. The membranes having been torn they began to breathe. Buffon and Schierig have made many experiments upon the lower animals, to find out how long their young can remain alive enveloped in the membranes when removed from their mothers. The latter observed that the pups of a dog shut up in their membranes lived half an hour, and that when they were plunged into tepid water, still enclosed in their membranes, that their pulses continued to beat for many hours.

Harvey[3] knew of this life-retaining power of the fœtus, for he asks, "How cometh it to pass that the fœtus being new borne, and continuing yet covered over with his entire membranes, and abiding still in his water, can subsist for some hours' space without any danger of suffocation, if he have but once attracted the air into his lungs, he cannot afterwards live a minute without it?" A most remarkable story, *apropos* of this subject, is told by Peter Stalpert.[4]

[1] 'Trans. Obst. Soc. Lond.,' vol. xiii, p. 88.
[2] 'Dictionnaire des Sc. Med.,' vol. xix, p. 388.
[3] 'Anatomical Exercitations.'
[4] 'Dissert. de Fœt. Nutrit.,' p. 45.

At the siege of Bergen op Zoom (not the last) a soldier's wife near her time was getting some water and was cut in two by a cannon-ball, insomuch that the child in its membranes fell into the water, where it continued for some time, and then was found by a soldier, who observing something to move took it up. The child, by order of one Cordua, was taken out of the membranes and christened Albertus Ambrosius.

This viable condition of the fœtus in the membranes exists the same when the whole are enclosed in the uterus of the dead mother. Dolœus[1] tells us that a woman eight months gone with child died of a fever, and the next day the bystanders observed the child to move for twelve hours. Semertus[2] says the midwife and bystanders observed a child move in the womb five hours after the mother's death. But perhaps the most extraordinary and best authenticated case is that of the Princess of Schwartzenberg, whose death occurred in Paris in 1810. She was one of the gay party participating in the pleasures of a ball given by her brother-in-law, the Austrian Ambassador. During that night of festivity there was an appalling conflagration which, together with other victims, caused the death of the Princess, who was far advanced in gestation. On the day succeeding her death a living child was removed by the Cæsarean operation.

There seems to have been an impression in the minds of people of all ages that when a woman died undelivered her child did not die at the same moment. In 1820 a council held at Cologne sanctioned the placing of a gag in the mouth of a pregnant woman dying, hoping thereby to prevent the suffocation of the infant. The learned Carolus Stephanus,[3] in the sixteenth century, advises that something should be placed between the teeth of women dying undelivered, and that the midwife should divide the legs of the corpse and

[1] 'M. N. C.,' Dec. 11, An. 5, Obs. 187, p. 279.
[2] 'Pract. Medic.,' Lib. IV, part ii, cap. 8, p. 437.
[3] 'Sennertus Med. Pract.,' Lib. iv, Sec. 6.

keep the vagina open until a surgeon could be found to perform the Cæsarean operation.[1]

There has also existed a popular belief that women buried undelivered may afterwards pass through the parturient process. Sue[2] informs us that it is the custom of certain ignorant women, who enshroud those dying pregnant, to shut up in the coffin with the corpse a needle, scissors, and thread, which, he says, is a proof that experience has convinced them that women can be delivered after death.

Numa Pompilius[3] enacted a law which commanded physicians to open the bodies of pregnant women after death with the intention of preserving the citizens of the state A. C. 600. The same law prevailed in Venice in 1608 and 1722; and in 1749 the King of Sicily punished medical attendants with death who omitted the operation on women soon after they expired.

In a medico-legal point of view post-mortem parturition is of great interest, and as Dr. Taylor[4] truly remarks, "A medical practitioner may be placed in great peril by an occurrence of this nature, unless the facts are known and can be deposed to by eye-witnesses. A woman might die undelivered during the attendance of a medical man. Her condition might be such as to justify the employment of instruments brought for the purpose, but not used, either from her sinking state or her sudden death. Under these circumstances the discovery after death of a dead child between the legs of a female, with the uterus lacerated and inverted, the placenta and umbilical cord lying near, and a large effusion of blood in the abdomen, are facts which at first sight do not appear to be reconciled with the effects of spontaneous changes in the dead body. There are probably some medical practitioners who, from not having heard of such cases, would not hesitate to deny the impossibility of

[1] It is strange that such an accurate observer as Roderic à Castro should have held a contrary opinion. 'De Morb. Mulier.,' Lib. iv, cap. 3.

[2] 'Anat. Exercitations,' 1653, p. 492.

[3] 'Legregia Diget.,' lib. xx.

[4] 'Guy's Hospital Reports,' 1864.

their occurrence. It is to them that cases of this description convey a serious warning."

From all the facts which have now been brought forward the following conclusions may be drawn :

1. Expulsion of the contents of the uterus may take place after death without the aid of art.

2. This may occur in cases in which no symptoms of natural parturition can be discovered before death.

3. Many of the manœuvres and accidents which take place in labour during life may occur in post-mortem parturition; such as expulsion of the placenta, spontaneous evolution of the fœtus, and prolapsus, inversion, and rupture of the uterus.

4. Expulsion of the uterine contents and accidents which accompany labour may be caused after death either by the contracting power which persists in the uterus after the death of the rest of the body, or by the pressure exerted upon the uterus by gases of decomposition pent up in the abdomen.

5. Of these causes the latter is the more frequent.

6. After the death of its mother a child may continue to live in the uterus for many hours.

7. After the death of a woman undelivered no time should be lost in removing the fœtus.

The PRESIDENT differed from Dr. Rasch in respect of post-mortem uterine contraction. He had observed in two cases, one of complete and one of partial inversion of uterus, where death had occurred about one hour previously, that the organ was firm and in one so much so as to defy all efforts at reduction. He added that when we called in rigor mortis to explain the post-mortem parturition we must also take into account the fact that rigor mortis would also affect the rigidity of the passage ; the question would be, Would the uterine rigor last longer than that of the passages ? In answer to Dr. Snow Beck he said the contraction lasting an hour would point to a post-mortem cause. If it were to be considered only the relic of the contraction which had occurred before death, then there was no way of distinguishing between it and the rigor mortis. But the subject under consideration was this, Was the fœtus expelled by the uterine con-

traction, which contraction lasted after the death of the mother? If there were no contraction, as Dr. Rasch thought, then it is by some other means, but that there is a post-mortem contraction the President was certain.

Dr. Snow Beck thought it might be desirable to add one or two particulars to the cases related as tending to show the amount of imagination which had been introduced into the records of them. Thus, in one case the corpse was said to have been found some months afterwards "having a dead infant in the right arm;" and in another, "with a dead girl lying on the bosom of the dead mother on the bier." It is more than 200 years ago since these cases were published, and at that time many fanciful notions were entertained as to the process of parturition, one being that the child was not expelled by the contractions of the uterus, but, in the words of Harvey, "it forced its way out by its own exertions." It was impossible to withhold the conviction that we were indebted chiefly to the imagination of the recorder for the details of these early cases of post-partum parturition. Some years ago he had seen a case of partial expulsion of the child from the dead body of the mother, in conjunction with Dr. William Merriman, from whose notes, made at the time, the following facts were taken. On September 1st, 1858, at 11 a.m., he was requested to see Mrs. D—, residing in the Waterloo Road, who had been in labour for two nights and one day. She was greatly exhausted; the pains had nearly ceased; the countenance very anxious; the abdomen swollen and tender, but not particularly so; the pulse very rapid and fluttering, but no vomiting had occurred, nor any sensation of anything having given way, nor any appearance to indicate that anything serious had taken place. The head presented and descended into the pelvis, but not so low as to press upon the perinæum; no movements of the child had been felt for some time, and it was believed to be dead. It was decided to apply the short forceps, but before doing so the woman was asked to take some refreshment. She sat up in bed to take some gruel, almost immediately became convulsed, and in about five minutes died, having previously vomited some coffee-ground fluid. The body was examined the following day at 5 p.m. The abdomen was tense and much distended with flatus, and the head of the fœtus, much decomposed, was projecting beyond the vulva. On opening the abdomen the uterus was found to be ruptured on the left side, and the nates to have passed into the peritoneal cavity through this rupture. Some coagulated blood was also in the abdomen. The conviction at the time was that the rupture had taken place during the lifetime of the mother, and that the head of the child had been forced through the lower part of the pelvis and beyond the vulva by the pressure of the flatus developed in the abdomen after death. The position of the nates of

the child through the laceration in the uterus seemed to preclude the possibility of any contraction of this organ being the cause of the extrusion which had taken place. With regard to any contraction of the uterus after the death of the mother, it should be borne in mind that this is only assumed as a probable occurrence, reasoning from the analogy of what has been seen in other organs, but that no one, so far as he knew, had observed any such contraction. The movements of the heart, after removal from the body of an animal directly after death, were well known, and it was assumed, but it was only an assumption, that similar movements might take place in the uterus after the death of the woman. In certain conditions of the system movements of the voluntary muscles could also be excited by a local stimulus, as after death from cholera. But all these after-death movements were very feeble and devoid of that power or force which would be essential to force the child through the pelvis, as well as to overcome the resistance of the perinæal muscles, which, being voluntary muscles, became rigid from after-death contraction or rigor mortis. He could not admit the cases mentioned by Dr. B. Hicks of an inverted uterus being so firmly grasped by the surrounding contractile tissue as to prevent it being readily returned, as any evidence of rigor mortis having taken place in the contractile tissue of this organ. For at most it was merely the contraction which had taken place during the life of the woman, not having become relaxed after death, which is a totally different thing to the contraction or rigor mortis which takes place after the death of the individual. As an eminent reviewer has remarked, "He mistakes his own convictions for facts, and reasons upon them accordingly." Upon the whole, all the evidence in these cases upon which any reliance can be placed leads to the conclusion that the extrusion of the child after the death of the mother has been caused by the distending force of the gas rapidly evolved in the abdomen during the process of decomposition, which in some conditions of the system may take place at a very early period after dissolution.

Dr. Madge said, in the event of a woman in labour dying undelivered, it would be an important point to determine how soon after her death one would be justified in opening the womb with the view of saving the child. Dr. Lever has recorded that he had on several occasions seen the movements of the fœtus in utero half an hour after the mother's death, and was only restrained from interfering by objections raised by the relatives. It is probable, however, that as a rule, a half hour's delay would be too great. In a case where he (Dr. Madge) had attempted to save the child in this way the operation was performed about twenty minutes after the mother's death; but the child was dead, killed probably by the action of the abdominal muscles during

the mother's convulsions from pressure and disturbance of the utero-placental circulation. Something similar has been observed to happen in pregnant women suffering from the cramps of cholera. He said that in his case, although convulsions came on during labour, there were no signs of uterine action after the mother's death, and on removing the child the womb remained in its uncontracted state.

OCTOBER 2ND, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—33 Fellows and 2 visitors.

Books were presented from Dr. McClintock, and Professors Chiari, Fabbri, Hugenberger, Rizzoli, and Verardini; and from the Smithsonian Institution and the American Medical Association.

A collection of works on Deformities of the Pelvis were presented by Dr. Arthur Farre.

The following gentlemen were declared admitted as Fellows of the Society:—Mr. W. M. Clarke, Bristol; Mr. G. B. Denton, Liverpool; and Dr. Wm. K. MacMordie, Belfast.

The following gentlemen were elected Honorary Fellows of the Society:—Fordyce Barker, M.D., Professor of Clinical Midwifery and Diseases of Women at the Bellevue Hospital Medical College; Otto Spiegelberg, M.D., Professor of Clinical Midwifery, and Director of the Gynæcological Clinique in Breslau; and T. Gaillard Thomas, M.D., Professor of Obstetrics in the College of Physicians and Surgeons of New York.

The following gentlemen were elected Fellows of the Society:—John Hankinson Gornall, M.R.C.S., Warrington; James Beveridge Spence, M.D., Lichfield; Edward Henry Trenholme, M.D., Montreal; and Thomas Webster, M.R.C.S., Bristol.

CASE OF PELVIC HÆMATOMA, OR RETRO-UTERINE HÆMATOCELE, WITH REMARKS—ESPECIALLY AS TO THE SOURCE OF THE HÆMORRHAGE.

By T. Snow Beck, M.D. Lond., F.R.S.,
MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON.

Mrs. B—, æt. 40, tall and well made, had enjoyed excellent health until the last four years, when she suffered from pain at the hypogastrium after eating; much flatulency; confined bowels, seldom being relieved except by the aid of medicine; sometimes severe pain in the stomach, with frequent and rather violent vomiting. Two or three years ago had a lengthened attack of very painful piles, which came outwardly each time the bowels were moved, and obliged her to lie down some time before they could be returned, and frequently passed a wineglassful of blood. Married several years, but never pregnant. Catamenia always regular, usually continued a fortnight, always had a great quantity, being "sometimes nearly drowned with it;" never had any pain either before or during the period, but of late frequently had pain deep in the left iliac region afterwards. For the last few months had suffered from great feeling of faintness; unable to bear any fatigue; much pain at the top of the head, with dreadful giddiness; vomiting of sour fluid after almost every meal, preceded by pain at the epigastrium; no appetite; offensive taste in the mouth; much flatulency; confined bowels, but no piles; pain about the middle of the abdomen, and deep in the left iliac region.

July 7, 1871.—Received a note stating she had been suffering from dreadful pain in the lower part of the stomach, with profuse discharge of blood during the menstrual period accompanied with large clots. I saw her on the following day.

8th.—Lying on the back with knees slightly drawn up; face pale; expression calm; complains much of the heat,

skin cool, perspiring; pulse 80, soft, regular; tongue moist, a little dirty white fur in the centre; vomited some watery sour fluid with a good deal of straining; bowels moved last evening, when the bowel came down very much, and was returned with difficulty; no difficulty in passing the urine; no pain as lying in bed. Since yesterday a lump has appeared at the hypogastrium, a little to the left of the median line; the previous pain suddenly ceased, and has not been felt since this has appeared. The lump oval, about the size of a duck's egg; distinctly circumscribed; firm, somewhat elastic; firmly pressed against the walls of the abdomen, and continued into the pelvis; no tenderness on handling; no fulness in either iliac region; dulness on percussion over whole pelvic region; considerable tenderness on gentle pressure into the pelvis. The vagina natural, moistened with a copious flow of deep red coloured fluid, more like ordinary hæmorrhage than catamenial flow; no coagula; a soft elastic swelling, bulging forward the posterior wall of the vagina, and occupying the space between the uterus and the rectum, which allowed the fingers to pass up at each side, and apparently to define the recto-vaginal pouch; softest and most prominent at the centre; no tenderness during the examination. The orifice of the uterus high up against the pubis; the uterus pressed up and lying against the abdominal walls; sound passed readily, and without pain into the uterine cavity, when the oval lump, which was distant from the pelvic swelling, could be moved from or pressed against the hand placed on the hypogastrium. The flow from the uterus was profuse last night, and never had been in the least interrupted, though now on the decline.

Rest in bed; iced soda water, with a little brandy, to relieve the thirst; bismuth, bicarbonate of soda, and ammonia twice a day, were prescribed.

12th.—The menstruation had nearly ceased; the lump was less distinct, and not so high in the abdomen. The dulness on percussion diminished, and no indication of any inflammatory action.

15th.—On sitting down to pass water a good deal of port-wine coloured blood, with some dark coloured clots, passed from the bowel with a gush.

16th.—About a small teacupful of dark blood, with some clots, passed at the time the bowels were moved.

August 7th.—Was much improved, and walking in the garden each day; some return of the symptoms of disordered digestion.

September 7th.—Was further improved. The catamenia returned profusely a fortnight ago, and passed off without any recurrence of the swelling in the pelvis.

April 4th, 1872.—Has continued well up to this date.

July 15th.—Continues improving; vaginal discharge, and all unpleasant odour ceased.

In this case there can be little doubt that an effusion of blood suddenly took place in the pelvis near the end of the catamenial period, which had been unusually profuse, and attended with great pain deep in the left iliac region. This pain had been gradually increasing, after menstruation, for about eighteen months, had been present this time during the period, and suddenly ceased on the occurrence of the effusion of blood. The lady had enjoyed excellent health till thirty-six years of age, indulging in the pleasures of the table perhaps more than she ought to have done, but never feeling any inconvenience from it; had been married several years, though never pregnant, and from the first appearance of the catamenia had always had a profuse flow. For the last four years she had suffered from great derangement of the digestive organs, which, in spite of medical treatment, had increased, and latterly the general health had been affected. She had also suffered from more than one severe attack of hæmorrhoids, with protrusion of the rectum when the bowels were moved, and frequent loss of blood to the amount of a wineglassful. The old questions then arise—Where did the effused blood come from? into what part was it effused?

It would not be possible to say decidedly where the

effused blood was situated, but it is more than probable that it was in the cellular tissue of the pelvis, and not in the cavity of the peritoneum. The tension of the swelling, the firm and immovable way in which the uterus was pressed against the walls of the abdomen directly the effusion took place, the circumscribed nature of the swelling which did not apparently involve the uterus, and the soft and elastic portion in the centre immediately behind the orifice of the uterus, appear to indicate that the effused blood was contained in a circumscribed and distended cavity; whilst the absence of all constitutional symptoms and of all pain, the small amount of tenderness on handling the tumour, and the early evacuation of the contents by the rectum—the seventh day—further confirm the previous objective symptoms. The arrangement of the different fascia in the pelvis covering the various muscles and converging to a central part at the neck of the uterus and the upper part of the vagina, is very complicated, and often presents a weak point behind the orifice of the uterus, into which the end of the finger can be pressed, and through which a hernial protrusion often occurs, producing one form of supposed prolapsus of the uterus. This point was indicated by the soft elastic portion in the centre of the swelling as noted at the vaginal examination; and with regard to the situation of these swellings, as Sir James Simpson has remarked, "there is almost no limit to the variety of situations in which a pelvic thrombus or hæmatoma may be found, for the veins may give way in any part of the pelvis, and the blood which escapes may fill sometimes one fascial loculament only of the pelvis, at other times several at once."[1]

The effused blood in pelvic hæmatoma, or hæmatocele, is said to come from various sources, but practically it comes from only three. Some of the reputed sources—"essentially a form of ovarian or Fallopian menstruation" (Tyler Smith, Graily Hewitt)—appear to be stated without any reliable observation. Whilst effusion of blood into the peritoneal sac from rupture of the gravid uterus, extra-uterine gestation

[1] 'Medical Times and Gazette,' August, 1859.

cysts, or aneurism, cannot properly be considered as belonging to this class of blood effusions.

The sources of the effused blood are, (*a*) rupture of an ovary which has previously undergone some process of degeneration, and been partially converted into soft, dark-red tissue capable of pouring out a considerable amount of blood; (*b*) rupture of a Fallopian tube or an escape of blood from the congested vessels of the part without any apparent lesion of their coats. The great vascularity of the Fallopian tubes would account for a considerable escape of blood after any rupture or any great congestion of the vessels; whilst the small supply of sentient nerves to the ovaries or Fallopian tubes accounts for the fact that great alteration of these structures may occur without communicating any pain or other unusual sensation to the individual. But hæmorrhage from both of these sources almost always takes place into the peritoneal cavity, and hence must be excluded in this case. Another source is, (*c*) rupture of some varicose vein. The veins of the pelvis are large and numerous, and liable to become varicose from various causes. Those contained in the broad ligament often become large and varicose in women who have borne children, and in whom the uterus remains enlarged. Sometimes they are so congested as to give a dark-purple appearance to the whole of the structures. When in this state the veins of the broad ligament sometimes give way, apparently in consequence of the little support the walls receive from the loose tissue by which they are surrounded, and effusion of blood takes place into the cavity of the peritoneum. But the coats of the vein may give way without any laceration of the peritoneum, and the blood is then extravasated into the loose cellular tissue in the broad ligament, and immediately surrounding the middle and lower part of the uterus. Other veins of the pelvis may also become congested and varicose, and give way during the general congestion usually attending the catamenial period, when the blood becomes extravasated into one or more of the "fascial loculi," forming swellings of various shapes and sizes. It is more than probable that one of the pelvic veins

gave way in the case recorded, considering the great amount of congestion which was present at the lower part of the rectum, and the pain deep in the left iliac region, which for some months had increased after each catamenial period, was very severe, immediately preceding the extravasation, and suddenly ceased when it took place. The more probable explanation of this pain, which differed from the pain generally attending menstruation, and did not appear to be of uterine origin, being that it arose from congestion of the pelvic veins associated with the hæmorrhoidal plexus, which congestion became intensified at each recurring period.

There is a reputed source from which the blood is derived in these effusions into the pelvis which will require to be examined with some care, on account of the general assent it has received. The extravasations are said to be in some way connected with the menstrual flow, "generally consequent on some disorder of the menstrual function, often on its temporary suppression" (Dr. West); or "the result of a morbid discharge from all, or part of the genital organs in the virgin state, some of the fluid being effused accidentally into the peritoneal cavity, while the rest escapes as metrorrhagia from the vulva;"[1] or, in the more precise language of Sir James Simpson, "the blood regurgitating along the Fallopian tube into the peritoneal cavity, having escaped from the cavity of the uterus" during menstruation.[2] Some authorities admit this as a not unfrequent occurrence; but others consider it so highly improbable that it could only be admitted upon being clearly shown to have taken place.

Dr. A. Meadows in a recent paper considers "these form a clearly marked group," and endeavours to explain how such an occurrence may take place. He remarks, "of course such a thing is not possible in the ordinary and natural state of the parts; but there can be no doubt of the easily dilatable character of the Fallopian tubes, for all erectile tissue has that property, and they are pre-eminently erectile. There must, however, in all cases be previous

[1] Bernutz and Goupil, 'Diseases of Women,' Syden. Soc. edit., vol. i, p. 207.

[2] 'Med. Times and Gaz.,' August, 1859.

distension of the uterus before its contents are forced along the Fallopian tubes, but when once the current sets in in that direction its continuance is, I believe, a matter of little difficulty."[1] I cannot, however, concur in this explanation. The Fallopian tubes are, no doubt, highly vascular bodies, and assume on certain occasions an erectile character. At these times the vessels become distended and the size of the tubes is enlarged, but the enlargement takes place in all directions, inwardly as well as outwardly, and it by no means follows that the small canal in the centre is perceptibly increased in size. But there is a more fatal objection to this explanation. The vascularity of the tubes does not extend throughout their whole extent, and does not include the portion contained within the walls of the uterus. Hence this portion, to about the extent of half an inch, would be unaffected, and, as it is the narrowest portion of the canal, would as effectually prevent any regurgitation from the uterus as at any other time. Moreover, there is no proof that any distension of the uterus occurs in the great majority of these cases, which it is admitted must take place before the contents are forced along the Fallopian tubes.

These remarks do not, of course, apply to those cases where the outward flow of the catamenial fluid is prevented by a mechanical obstruction, either congenital or acquired, when the uterus gradually becomes greatly distended, and the efforts to expel the contained fluid become very great. Different cases are recorded which show that with the distension of the accumulated menstrual fluid the Fallopian tubes also become distended, and the contents extravasated into the cavity of the peritoneum; or, where an obstruction exists in their canal, they become much distended and finally ruptured with extravasation of their contents. Still it is remarkable, considering the number of cases of mechanical obstruction, how few there are on record where the retained menstrual fluid has been clearly shown to be forced along the canal of the tubes; whilst in others the

[1] 'Obstet. Trans.,' vol. xiii, p. 159.

fundus of the uterus has even been ruptured before this could be effected. Other cases, again, are recorded where the Fallopian tubes have been so occluded at both extremities as to prevent the passage of any fluid, and where the tubes have become so distended by the effusion in their interior as to become ruptured. A case similar to this is recorded by Bernutz:—"A girl, aged 26, began, when twenty, to suffer symptoms of retained menstruation, which had recurred every month since for four or five days. On examination there was found to be complete occlusion of the vagina at about its middle. An abdominal tumour, the size of a fœtal head, was felt over the uterus, it was tender on pressure; fluctuation was felt at the vaginal obstruction; the membrane was incised and about eight ounces of black coagulated blood mixed with mucus was evacuated; pressure on the tumour favoured this evacuation. Peritonitis set in and death on the second day.

"On making a *post-mortem* examination there was found peritonitis with sero-purulent effusion mixed with a little putrid blood in the left iliac fossa; the uterus was about the size of a fist; the Fallopian tubes were adherent by membranes to the posterior part of the ovaries and were distended with black blood. The left tube was the size of a turkey's egg and had ruptured; the right about the size of a nut; the ovaries showed several cicatrices and ovules in various stages; several ovules the size of a millet-seed were found in the left Fallopian tube."[1]

It must be added that "the tubes communicated with the uterine cavity by an extremely small canal."[2] Hence, though there was not complete occlusion of the uterine ends of the tubes, yet the opening being so extremely small as not to permit the passage of an ovule, it is fair to infer that little or no blood passed from the uterus to the tubes, and that the blood found in these organs had been secreted from the inner surface, had distended their canals, and caused rupture of the left tube.

[1] Syden. Soc. edit., vol. i, p. 19.

[2] Paris edition.

Whilst there can be no doubt that in obstinate mechanical obstruction the menstrual secretion may be extravasated into the peritoneum through the medium of the Fallopian tubes, it remains to be shown whether this can take place in the ordinary condition of the uterine organs, and in the absence of any decided mechanical obstruction. I entirely agree with Dr. Meadows in the remark—"Of course such a thing is not possible in the ordinary and natural state of the parts." But other authors entertain a contrary belief, and have recorded cases where they consider this to have taken place.

M. Bernutz has recorded or quoted from other observers fourteen cases, but none of these, so far as I can perceive, are satisfactory.

In the case recorded by Dr. W. F. Barlow,[1] a young woman, æt. 22, aborted at the sixth month in a second pregnancy. She afterwards had an attack of purpura, and died five days after delivery. At the autopsy the skin and the mucous membrane of the stomach and intestines were much marked with purpuric spots; some on the peritoneum and pleura. The condition of the body generally exsanguine. A large quantity of blood was effused into the abdomen and pelvis, mostly coagulated but partly fluid. Solid coagula were observed protruding from the open orifices of the Fallopian tubes. The tubes themselves were filled with blood and *distended at a short distance from the uterus up to the distal extremity*. The uterus was smaller than is usual a week after delivery. Its cavity presented nothing remarkable, except that a clot occupied part of the cervical canal and was situate over the orifice; it seemed also to have been compressed by it.

The absence of all blood in the cavity of the uterus and the Fallopian tubes to a short distance from the uterus appears conclusive that it did not come from this organ; whilst the tubes being filled and distended with blood to a short distance from the uterus affords equally strong

[1] 'London and Edinb. Monthly Journal,' 1841.

evidence that the blood was poured out from the inner surface of the tubes themselves.

In another case reported by M. A. Proust, a married woman, æt. 28, who had had three children, was admitted into the Hôpital S. Antoine suffering from jaundice. The liver was diminished in size; she became comatose and vomited thirty or forty ounces of blood. Soon after this premature labour came on at the fifth month, attended with a great deal of hæmorrhage, which recurred once or twice, and from the effects of which she died. At the autopsy the cavity of the peritoneum contained some reddish serum. The liver was scarcely more than half its usual size, soft and very red. The kidneys healthy. The uterine cavity was filled with blackish coagulated blood, which was continued into the inner half of each Fallopian tube; the outer half was empty and smaller than the inner portion. Their walls were healthy, but the mucous membrane near the inner orifice was injected, ecchymosed, and slightly softened. The peritoneal surface of the tubes near the uterus was also finely injected. Small ecchymosed spots existed beneath the peritoneum. Small extravasations of blood also existed in the cellular tissue of the broad ligaments. The ovaries were healthy.[1]

It cannot be supposed that any obstruction existed to the outward flow of the blood so soon after an abortion at the fifth month; whilst the recurring hæmorrhage not improbably arose from a relaxed condition of the uterus. The coagulated blood was confined to the inner half of the Fallopian tubes, which were larger than the outer half, were also much congested, and the mucous membranes ecchymosed and softened. It appears more probable that the blood found in the inner half of the tubes was effused from their inner surface, than that it came from the uterine cavity, especially as the outer portions, which were not congested, were empty. With the open state of the external orifice of the uterus there is nothing to justify the inference

[1] Bernutz and Goupil, 'Maladies des Femmes,' Paris edition, p. 437.

that sufficient force could be exerted on the blood in the uterine cavity to force it into the inner half of the Fallopian tubes.

A third case, reported by Dr. Scanzoni:—A young girl, 22 years of age, while suffering from an attack of measles, died during menstruation with acute peritonitis. On *post-mortem* examination hæmorrhage was found to have proceeded from the left Fallopian tube, which was distended to the size of the index finger, and contained about two ounces of blood, partly fluid, partly coagulated. Through its abdominal orifice as much as sixteen ounces of blood had escaped.

Again, there is no evidence that the blood came from any other part than the Fallopian tube; the condition of the uterus not being mentioned.

Of the remaining cases eight ended in recovery, so that the source of the blood could not be ascertained. Two terminated in death, the diseases being of so complicated a character as to prevent the source of the hæmorrhage being determined.

Several cases have also been recorded by Dr. Robert Barnes[1] in a paper entitled "Cases Illustrating the Clinical History and Pathology of Effusions of Blood into the Peritoneum, with special reference to the so-called Retro-uterine Hæmatocele." Under the head "Menstrual disturbance or difficulty, leading to effusions of blood into the peritoneum," he observes, "This group includes by far the largest proportion of cases. . . . It may be stated as a general rule that, whenever there is any impediment to the free discharge of menstrual blood by the natural route, if the quantity of the blood exuded in the uterine cavity be excessive, or suddenly increased by accident, by emotion, or other causes, escape may take place by the Fallopian tubes into the peritoneum." It is with much regret I am obliged to differ from Dr. Barnes, but I have very carefully examined all the cases reported, and have failed to discover any facts recorded which maintain or justify these remarks.

[1] 'St. Thomas's Hospital Reports,' 1870.

The particulars of twenty-seven cases are given, arranged under five sub-groups, and the general result of these cases is unusual:—(*a*) the large number of twenty-four cases recovered, and of the three deaths which took place, neither arose from the effects of any effusion of blood; (*b*) in no case was there any distinct evidence—by post-mortem examination, by puncture of the swelling, or by sudden evacuation of grumous, or otherwise altered, blood by the rectum or the vagina—that any hæmatocele had ever taken place. Of the three deaths recorded, one (43) arose "under symptoms ascribed to malignant disease of the stomach;" another (39) after operation "for ovarian dropsy, but did not succeed;" a third (29) "after peritonitis with ascitic effusion, proceeded rapidly." And with respect to the evacuations of the contents of the swelling, though it is stated (p. 48), "the blood coagulates, and may be discharged in mass by an opening in the vagina or rectum, as in Cases . . . 35, 36, 40," yet neither of these cases contain the usual evidence of this having occurred. No. 35 "had a sanguino-purulent discharge about a week after I saw her. . . . The discharge became offensive, and was corrected by carbolic acid lotions." No. 40 "was steadily improving. Oozing of dark fluid slimy blood set in; this continued some time." The character of these discharges rendering it more than probable that they were secreted by the mucous membrane of the vagina. And in No. 36 "the flow (menstrual) then returned, and there has been slight sanguineous discharge ever since of a grumous character." It is further added (p. 48), "It (the blood) may without coagulating, or after coagulating and breaking up be evacuated slowly by a small opening into the rectum or vagina." But there is no proof of this in any of the cases, and I do not know of any instance where such a mode of evacuation has been shown to have taken place. In No. 47 "a free discharge of blood, thick and black, took place from the bowel, and continued for a fortnight," but this is not referred to by the author, and will be considered subsequently.

It can scarcely be said that this evidence is sufficient to

show that "escape of blood may take place by the Fallopian tubes into the peritoneum," and as it would be impossible to go over each case, I must endeavour to select three or four such as may give a fair idea of the whole.

The first case (No. 27) is arranged under "Probable Fallopian Gestation." A young lady, who had no children, exceeded her menstrual period by one week, was exposed to cold, and taken with pelvic and abdominal pains and vomiting, followed by hæmorrhage from the vagina. The pains continued, and at one time suggested peritonitis. She was weak, not very anæmic; pulse 90; can move her limbs; some tenderness in pressing deep in pelvis on left side. Uterus pressed rather low down; cervix small, hard; os hard, scarcely at all open, its mobility is impeded; the vaginal roof on the left is lowered and resisting; pressure gives pain. "*Diagnosis.*—Retro-uterine or intra-ligamentous effusion of blood exciting pelvic peritonitis, produced by interrupted menstruation, and the attendant congestion of the ovaries or Fallopian tubes, or by escape into the peritoneum of a very early Fallopian ovum."

It may fairly be asked upon what evidence is this diagnosis founded? I am unable to perceive any evidence of an early Fallopian ovum; of such ovum having escaped into the peritoneum; of congestion of the ovaries or Fallopian tubes, or of pelvic peritonitis. Delayed menstruation for one week; the vague terms pelvic and abdominal pains, with vomiting and some tenderness on pressing deep in the pelvis, are not sufficient to indicate the existence of any of these conditions, nor can I perceive any signs or symptoms that effusion of blood had taken place.

The four following cases form the sub-group "Mechanical Impediment," the first two being each headed "Menstrual Retention."

No. 28.—A girl, æt. 13, who had not menstruated; for some days had suffered from pelvic and abdominal pain; fever; rapid pulse. Saw her at night; intense fever; countenance expressive of intense pain; draws her legs up; the abdomen, especially near the pelvis, very tender on

pressure, not much swollen; the finger passes the hymen; cervix felt with difficulty; full examination prevented by the acute pain.

No. 29.—A girl, æt. 14½, had never menstruated; of a tubercnlar family; apparently in good health three weeks ago. Fourteen days ago peritonitis appeared. Peritonitis, with ascitic effusion, proceeded rapidly. A firm, round tumour, rising above the pubes. It increased in size, was as large as the uterus at three months' gestation; but the pain and distension from effusion was so great as to forbid minute exploration; hymen permitted finger to pass; vagina fair size; a somewhat firm mass was felt at brim of pelvis; the os uteri could not be clearly made out; the cervix seemed distorted and compressed by the tumour. The whole was slightly moveable in connection with the tumour above the symphysis. Fluctuation everywhere in the abdomen, and dulness in front. Pulse 120 to 140: countenance expressive of pain; prostration; tongue dry. Dr. Stevens, having regard to family history, thought there was tubercular peritonitis. The symptoms seemed too rapid for this. The abdominal shocks and inflammation indicate some sudden injury. She died the next day. No autopsy could be obtained.

"These two preceding cases," observes Dr. Barnes, "appear to me of remarkable interest. Under the hyperæmic turgescence attending the onset of the first ovulation, and the attendant menstrual flux, there is a rapid transudation of blood from the mucous membrane of the uterus. This organ, comparativcly immature and unused to the duty it is called upon to perform, does not readily expand to accommodate the blood poured into its cavity, and which is retained by an imperfect development of the cervix from being discharged by its natural outlet. There is consequently reflux along the Fallopian tubes, hæmatocele, and peritonitis. There can scarcely be a doubt that this is the explanation of some, at least, of those apparently obscure attacks of peritonitis which sometimes seize young girls at their entrance upon the ovarian epoch."

I am not aware of any facts which justify the statement that "a rapid transudation of blood" takes place from the so-called "mucous membrane of the uterus" at a first menstruation; and when this is made in relation to an imperfect development the statement becomes even more doubtful. A profuse menstrual flow, no doubt, every now and then occurs at a first and subsequent menstruation; but when this is the case the attendant symptoms show that it takes place from the mucous membrane of the vagina. Again, it is a novel doctrine that it is "the duty" of the uterus to expand and accommodate itself to the menstrual secretion, which secretion usually flows away as it is exuded. When severe obstruction is present the uterus certainly "does not readily expand to accommodate the blood poured into its cavity," but does so after much resistance, and distress to the individual. An "imperfect development of the cervix," even supposing it to exist, would not prevent the flow "from being discharged by the natural outlet." But what proof is there that any obstruction did exist in either of these cases? The statement—"There is consequently reflux along the Fallopian tubes, hæmatocele, and peritonitis," scarcely appears to be justified by the facts. The usual signs of "hæmatocele and peritonitis" are not recorded, and it cannot be intended that these serious conditions could exist without giving rise to any signs or symptoms. Omitting the consideration of No. 29, which presents some complications, No. 28 appears to have been acute congestion of the uterus and vagina, which every now and then is developed at the period of puberty, or shortly afterwards. The "acute pain" on passing the finger into the vagina" was strong evidence of this, and no sign of either "hæmatocele or peritonitis."

No. 30.—May 21, 1864.—Mrs. F—, æt. 23, married eight months; always regular, not profusely. Husband says there has never been perfect connection; the attempt gives great pain. The last menstrual flow did not appear when due, but a slight coloured discharge has continued for the last ten days. Was out yesterday, and seemed well this morning. Was suddenly taken with severe abdominal pain; vomiting;

collapse result of shock, seemed moribund. Dr. Giles thought there was intestinal hæmorrhage. Saw her two or three hours after the attack; was still in collapse but rallying; pulse 130, full; does not bear pressure on abdomen; some fulness; breasts said to have been fuller than usual, but they show no areola. The uterus is very low in the pelvis; cervix conical, curved forwards; the uterus is set fast; pressure on cervix gives acute pain in pelvis; there is fulness on either side of the cervix. *Diagnosis.*—Effusion of blood in pelvis from Fallopian tubes or ovaries.

"23rd.—Better. Pulse 100; skin moist; can extend her legs without pain; respiration easy. A firm mass is felt in the left iliac region. She recovered completely."

"This lady," remarks Dr. Barnes, "came under my observation again two years afterwards on account of the continued impediment to intercourse. This and the characteristic sterile cervix satisfied me there had been no pregnancy. The source of hæmatocele, therefore, was menstrual blood probably escaping during influence of sexual excitement."

These symptoms might lead to the inference that effusion of blood had taken place into the peritoneum; but there are serious objections to this view. It is most unusual to meet with these effusions in a lady twenty-three years of age without children, and they do not cause, in two or three hours, so much tenderness in the abdomen and acute pain in the pelvis on pressure of the cervix, with only fulness on either side of that part. The absence of the physical signs of any swelling appears conclusive against the existence of any effusion, whilst the "firm mass in the left iliac region" two days, later with previous tenderness, pointed rather to some inflammatory deposit. However, the existence of hæmatocele is assumed, and it is added, the source, "therefore, was menstrual blood, probably escaping under influence of sexual excitement." Impediment to intercourse, attended with great pain, almost always results from some affection of the sensitive parts of the vulva or vagina, and induces

opposition or repugnance to intercourse—the antipodes of excitement. But assuming excitement to have been present, how could that cause reflux of the menstrual blood along the Fallopian tubes into the peritoneum? The menstrual flow "did not appear when due," "was not profuse," no obstruction is noted at the uterine orifice, and it is not suggested there was any distension of the uterine cavities. Moreover, excitement being an action of the cerebro-spinal system might be induced through the sensient nerves of the vulva or vagina; but how could it cause contraction of an empty unimpregnated uterus so as to force blood along the Fallopian tubes? The motor nerves supplied to the uterus or the Fallopian tubes are very small in amount, and any influence reflected to them from the nerves of the vulva or vagina would not be likely to produce strong contraction of these organs.

No. 31.—A lady, who had been married twenty years without being pregnant, was taken rather suddenly ill with acute pain in the pelvis and prostration fourteen days ago. Signs of peritonitis followed. I found the uterus fixed, the os small, and a firm mass behind the uterus. The recent symptoms had subsided. She got well.

"Here probably," observes Dr. Barnes, "blood had been poured out from the ovaries or Fallopian tubes from impeded menstruation, the two factors being the narrow os uteri and sudden congestion. The long-enduring sterility is further evidence of menstrual obstruction."

Why long-enduring sterility should be any evidence of menstrual obstruction it would be difficult to say, seeing that sterility arises from so many causes. Even life-enduring sterility is frequently produced by simple antiversion of the uterus without any disturbance of the menstrual function. How "the narrow os uteri" could have any effect with "sudden congestion," assuming it to exist, so as to induce an outpouring of blood from the ovaries or Fallopian tubes, appears equally difficult to perceive; moreover, "a firm mass behind the uterus," without any other symptom, is scarcely sufficient to establish the existence of hæmatocele.

Before concluding the criticism I have ventured to make, I am desirous to take one case where the signs of hæmatocele were most marked. The facts have been slightly rearranged.

No. 47.—S. W— came to the hospital as an out-patient in July, 1870; married eight years without being pregnant; had been getting stout for the last three years, especially the last year; menstruation was suspended for eight months, attended with frequent vomiting, when a free discharge of blood, thick and black, took place from the bowel; clots also passed by vagina. This continued for a fortnight attended with great pain, so that she could not lie down. When the suspension began there was acute pain in the abdomen, which used to swell up; had five or six acute attacks of the kind every month. The uterus fixed; os, cervix, and the body pushed forwards. near to the symphysis. A firm, rounded edge, like a collar, behind the cervix.

"In this case," Dr. Barnes remarks, "no doubt, a retro-uterine hæmatocele was formed, and remained in a more or less indolent state for eight months, when it was discharged by the rectum."

The symptoms which occurred eight months ago were suspended menstruation, with acute pain in the abdomen and frequent vomiting, and if these be admitted as the symptoms of the formation of hæmatocele, then there must have been from forty to fifty separate effusions of blood, seeing that she had five or six acute attacks of the kind every month, and yet was enabled to attend at the hospital as an out-patient. At the end of eight months a discharge of thick and black blood took place from the rectum, and clots from the vagina, attended with great pain, which continued for a fortnight; this again is so different from the manner by which a hæmatocele is discharged that such an explanation can scarcely be accepted. In the absence of all signs of any distinct swelling, it is much more probable that these symptoms arose from great disorder of the digestive organs, accompanied by congestion of the veins of the rectum, as in the first case recorded, than that they were caused by the

formation of a hæmatocele, recurring five or six times each month for a period of eight months.

The result of this examination, then, appears to lead to this:—whether we take the general facts deducible from the whole of these cases, or the facts recorded in each case separately, the conclusion appears to be the same, that there is no evidence of any reflux of blood from the uterus into the peritoneum through the medium of the Fallopian tubes, except in those cases where there has been permanent obstruction to the outward flow of the menstrual secretion and consequent great distension with enlargement of the uterine cavities.[1]

With respect to the treatment this appears to be pretty obvious from the various cases which have been recorded. In many, as in the case first related, the actions set up by the presence of the effused blood lead to its removal without any artificial assistance; and, so long as the swelling does not increase, does not become more tender than at first, and no constitutional symptoms appear in the individual, it may be safely left to the unaided efforts of nature; complete rest in bed being enjoined and any accidental complication being attended to. But in other cases this satisfactory course does not take place, and it becomes necessary to render assistance in the removal of the blood, in order to avoid the serious consequences which are known to follow, either by the rupture of the cyst and the escape of the contents into the cavity of the peritoneum, the extension of inflammation to the neighbouring veins and consequent pyæmia, or gradual exhaustion and hectic symptoms. In these cases there can, I think, be no doubt as to the propriety of making an artificial opening into the cyst and letting out the contents. And then occur the questions—When is the proper time to interfere? where ought the opening to be made? As a general rule, the cyst should be punctured; when some weeks have elapsed without any signs of decrease in the

[1] I have been obliged to omit all reference to the cures published by Dr. Tuckwell, of Oxford, in consequence of the book being out of print and not being in any of the public libraries.

swelling; when the swelling increases in size, becomes more tense, more tender, and more painful; when the temperature increases, the complexion becomes of a dirty-yellowish hue, or more decidedly jaundiced, the abdomen swells and becomes tense, with gradual emaciation and increasing weakness; when there is repeated shivering, frequent vomiting, rapid pulse, night sweats, or other symptoms of constitutional disturbance. And as to the seat of the opening, the part most frequently selected by nature—the rectum—appears the most appropriate. Occasionally, when the swelling points prominently in the vagina this part should be preferred. Usually it is sufficient to puncture the cyst with a full-sized curved trocar, taking care that it be directed to the centre of the swelling and passed sufficiently deep to enter the cavity. Sometimes a small trocar, to which an exhausting syringe has been attached, may be preferred; and now and then it becomes necessary to enlarge the opening, remove any coagula, and even wash out the cavity with an antiseptic fluid. Sir James Simpson strongly insisted upon making a free opening:—"To open the hæmatoma effectually you must make an incision into it with the tenotomy knife, and then freely dilate the opening still further with the fingers . . . . For it is not enough, in a case of this kind, to make an opening into the cyst. You must introduce the finger through it and break down the septa and blood coagula, so as to ensure their complete removal."[1] But this appears only necessary in exceptional cases.

Dr. Rasch said the value of Dr. Beck's elaborate paper might have been enhanced by devoting some spare time to diagnosis, and especially to the differential diagnosis from cellulitis. We had seen on a former occasion that there was still some difference of opinion amongst the learned members of this Society. It would, in Dr. Rasch's opinion, be an important help to diagnosis if what he found in a few well-marked cases should on more extended observation prove the rule, viz. the low temperature (subnormal) in the first days of the disease, or longer. In an

[1] 'Medical Times and Gazette,' August, 1859.

exquisite case, which came very early under Dr. Rasch's care, the temperature was for some time between 96° and 97° F., and never rose beyond the normal temperature. If we find, moreover, fainting, sudden anæmia, and rapid appearance of a doughy tumour near the womb, our diagnosis was clear enough. Dr. Rasch had found that the womb, though displaced by the hæmatocele, was not so immovable as in cellulitis, and considered this a valuable difference in aid of a proper diagnosis. All these remarks, of course, were made with regard to those cases where no great inflammatory reaction had set in. Dr. Rasch had, until now, resisted the temptation to puncture the hæmatocele, his cases getting better with rest and an ice bag in the beginning, both to counteract a further hæmorrhage and inflammatory reaction; and he thought it right not to interfere as long as there were no urgent symptoms to call for an incision. It would be interesting to know how far an incision had to account for the offensive discharges that have in some cases been observed. Dr. Rasch had not seen such a case yet.

Mr. Scott felt much obliged to Dr. Snow Beck for again bringing forward a subject of deep interest and much obscurity. The various opinions which had been expressed as to the true nature of the cases published as cases of hæmatocele, indicated in some degree the difficulty of arriving at a correct diagnosis. He had seen cases in which, after a few hours of acute cellulitis, collections of fluid had taken place, which would have been difficult to distinguish from hæmatocele, and which yielded, on tapping, clear serous fluid only. If Mr. Scott understood Dr. Beck's paper aright, he stated that no regurgitation can occur from the body of the uterus through the Fallopian tubes, unless there be complete occlusion of the os and cervix. Mr. Scott took exception to that proposition, inasmuch as he thought it could not be doubted that in acute flexions, especially anteriorly, where dysmenorrhœa was very marked, regurgitation through the Fallopian tubes was very possible. If, as stated by Dr. Beck, all cases of hæmatocele arose from rupture of varicose veins of the uterus or its appendages, we should have to do mostly with fatal cases.

Dr. Playfair said that the question raised by Dr. Rasch as to the differential diagnosis of pelvic hæmatocele and inflammatory affections in the neighbourhood of the uterus was one of great importance. Dr. Rasch, however, it seemed to him, has fallen into a common mistake in talking of the affection to be diagnosed as "pelvic cellulitis." It was not in cases of true pelvic cellulitis, or peri-uterine phlegmon, or para-metritis, as they were otherwise called, that any difficulty arises; they are generally sufficiently easy to distinguish from hæmatocele. But it is in pelvi-peritonitis, or peri-metritis that it is difficult to distinguish, and it is to be

regretted that the difference between the two classes of cases is even yet not sufficiently recognised. The points Dr. Rasch seemed to rely on were, that in hæmatocele the temperature was not heightened, the attack came on suddenly, with pain and shock, and the uterus remained freely movable. The second point was unquestionably of great value, but he believed Dr. Rasch to be mistaken in stating that the uterus remained movable in hæmatocele. It might be so at a very early stage of the affection, but very soon after the blood was effused it would coagulate, and the uterus in the great majority of cases became quite fixed and immovable. An important point, not mentioned by Dr. Rasch, was that the uterus was apt to be much more displaced and pushed out of its central position in hæmatocele than in pelvi-peritonitis. With regard to treatment, he felt obliged to take exception to Dr. Beck's opinion, that it was frequently advisable to introduce the finger into the blood-sac after an opening had been formed, and forcibly break down and remove the contained clots. It was only quite exceptionally that this was necessary, and he believed it to be a practice attended with a certain amount of risk, and not to be carelessly or frequently adopted.

Dr. Heywood Smith remarked that the points brought forward as to the differential diagnosis of pelvic hæmatocele were of great value. He did not think sufficient stress had been laid upon the information that may be elicited by the double touch or recto-vaginal examination. It was much to be regretted that Dr. Barnes' absence from the meeting prevented their hearing his explanation of certain points which had been put forward as discrepancies by the author of the paper. In some of the cases quoted the vaginal examination seems to have been relinquished because of the youth of the patient or from excessive pain, and no mention is made of the result of the rectal examination. Mobility in itself should not be insisted upon as a point of value, as that might vary in degree according to the interval of time that had elapsed subsequent to the supervention of the symptoms. Doubtless a normal, or nearly normal, temperature is a mark of some value, as the presence of constitutional disturbance would point to other diseases. In cases of small ovarian cysts we might find similar conditions to those presented to us in pelvic hæmatocele, viz. a somewhat fluid, elastic swelling posteriorly and towards one side of the uterus, some mobility of the uterus, together with low temperature. With regard to the soft portion referred to on the anterior aspect of the post-uterine swelling in these cases of hæmatocele, he asked if it might not be due to the interspace between the two portions of the sacro-uterine ligament.

Dr. Snow Beck, in reply, said that he did not consider the questions of diagnosis between pelvic hæmatoma and pelvic cellu-

litis or pelvic peritonitis, because the paper was already too long, and these questions did not arise in the case recorded. There not being any constitutional symptoms, the pulse quiet, and no local indications of inflammation, there would not be a question of either of these diseases. He was aware that effusions of blood in this situation had been called hæmatoceles from some supposed analogy between the reflections of the peritoneum in the female and the formation of the tunica vaginalis in the male, and that they were at first limited to effusions of blood into the cavity of the peritoneum, which must gravitate into the recto-uterine pouch. But effusions of blood also occurred outside the peritoneum, and sometimes between the many layers of the pelvic fascia, as he believed had taken place in the case first recorded. Hence pelvic hæmatoma appeared to be a better designation. He did not think those imaginary cases, where a small quantity of blood was supposed to be discharged from the Fallopian tubes into the peritoneum, could properly be considered as instances of disease. It was impossible to prove they ever took place, and equally impossible to disprove their occurrence. And if they did take place, the small amount of blood was readily absorbed without producing any inconvenience to the individual, and without calling for any interference from the medical practitioner. With respect to washing out the cavity left by the effusion after the blood had been evacuated, he did not see how this could be productive of any mischief; but, of course, it would only be employed in exceptional cases. He had in recollection a case where this was done apparently with much benefit. It was a considerable effusion, probably into the cavity of the peritoneum, and after evacuation through the rectum, the discharge was offensive, with symptoms indicating injurious impregnation of the general system. A catheter was passed into the cavity through the rectum each day, and washed out with water and McDougal's carbolic fluid, which was composed of carbolate of lime and sulphate of lime. During the use of this lotion the offensive discharge ceased, the cavity dried up, and the patient recovered, but, of course, other means were employed at the same time. From the cases on record there could be no doubt that one of the large and numerous veins in the pelvis was sometimes ruptured, and blood became effused. But there was no case recorded, that he knew of, which showed that any flexion of the uterus could produce sufficiently permanent obstruction to the escape of any blood through the orifice of the uterus, so as to cause distension of the uterine cavities, and force the blood along the very small canals of the Fallopian tubes.

STATISTICS OF STILLBIRTHS.

By Fred. W. Lowndes, M.R.C.S. Eng.,
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The absence in this country of any registration of stillborn infants has often been regretted, but more, as it seems to me, on medico-legal than on any other grounds. Our art concerns the lives of two individuals; we have to a certain and very considerable extent, opportunities afforded to us of ascertaining how far the cultivation of obstetrics as a science and art has affected one of these individuals, and it is gratifying to know that maternal deaths during the puerperal period are much less than they used to be. Doubtless much remains yet to be done in this direction, and it must have struck most of those who read the "Tables of Mortality after Obstetric Operations," published in this year's 'Transactions,' what a considerable number of lives have been lost from want of timely assistance. I propose this evening to draw your attention to the case of the other individual whose life is entrusted to our care—I mean the infant. Statistics are doubtless dry and weary to wade through and write about, and perhaps still more weary to listen to; but as it is from statistics we have learned so much of what has been valuable material in enabling us to follow out the old adage—"Prevention better than cure," I make no further apology for so occupying your time, more especially as these statistics possess many features of interest, and are especially important and likely to be of practical use as the registration of stillbirths in this country is contemplated. But it is as affecting our practice that I wish to consider this subject, and especially as regards the more frequent employment of the forceps. Your late President, in his Annual Address, lays great stress on this point, and says, "Unquestionably this Society has still work to do in urging this point on the attention of the profession."

Let us first examine the statistics of stillbirths in those countries where a systematic registration of such obtains. In the 'Lancet' for 13th July, 1869, page 52, is a medical annotation entitled "Stillborn," giving the following interesting statistics of stillbirths in different Continental States—

Netherlands	5·64 per cent.
Belgium	4·72 „
France	4·63 „
Saxony	4·49 „
Norway	4·46 „
Prussia	4·33 „
Hanover	4· „
Bavaria	3·74 „
Italy	1·94 „
Austria	1·64 „

Some additional details are given respecting the numbers in Italy, the proportion in which, as will be seen, is lower than any other European State, except Austria. The total numbers are, for the year 1864, as follows—

Births	845,454
Mort-nés (stillborn)	14,209

Of these latter the sexes were—

Males	8269
Females	5940

Or 138 males to 100 females.

Legitimate stillbirths	1·85 per cent.
Illegitimate „	6·59 „
Children found exposed	2·61 „
All categories	1·94 „

One cannot help being struck with the remarkable discrepancies in the above figures, taking the highest and lowest average; and at the same time with the great evenness (so to speak) of the figures between these two extremes. Thus, in six different states the figures range from 4 to 4·72

per cent. The greater predominance of males over females is a matter well known to us, and probably due to the larger size of male children. The greater number of illegitimate stillbirths is also a matter of note, and just what we should expect to find when we consider the circumstances that generally attend the births of these unfortunates, a secret delivery, the absence of many measures which would be adopted in the case of a legitimate infant, and if not downright unfair play by wilful omission, certainly no regret on the part of those immediately concerned that the infant has not survived its birth.

It must be remembered, however, that the arrangements prevalent on the Continent for the registration of stillbirths are not uniform. Thus, in 1867, the Paris Statistical Society, taking advantage of the presence in their city of *savants* and statists from all parts of the world, who were visiting the exhibition, proposed that at one of their public séances the following question should be discussed: "What is understood by 'stillborn?' Should the term apply exclusively to infants born before, during, or within a specific interval after the accouchement, or should it include infants presented dead for registration by the civil officer? Does the number of stillborn increase proportionally to the total births? Admitting the increase of stillbirths, is that increase observable in towns and country alike?"[1]

From a paper published by M. Loua on the "Stillborn in Paris," in 1865, the following particulars are extracted:— In France it is the practice to include under the designation of *mort-nés*, not only infants born dead, but also those born alive who die before the legal declaration of birth. The numbers were as follows:—

Total number of births . . .	55,157
Mort-nés	4410

Or 8 per cent.

Number of *conceptions* . . .	59,567

[1] 'Lancet,' Aug. 17, 1867, p. 202.

Or 108 conceptions to 100 births, and 7·4 stillborn to 100 conceptions.

From 1817 to 1863 the proportion of mort-nés to conceptions had increased from 5·53 to 7·09, and in 1865 to 7·40 per cent. Of the two sexes the males furnish by far the greatest number of mort-nés, and the issue of illegitimate connexions more than those of marriage. Thus, to every 100 conceptions, of each sex there were 8·26 males and 6·48 females stillborn; to every 100 legitimate births 6·70, and to 100 illegitimate births 8·53 stillborn. Another way of looking at these facts shows that taking 100 births of each class as the basis, there were 109 male, 107 female, 109 illegitimate and 107 legitimate conceptions. The ratio of female to male mort-né was as 100 to 134. M. Loua notices that the stillborn seem to follow the order of general mortality in respect of their frequency in any season of the year; and he recognises in the coincidence of the maximum of mort-nés with the acmé of cholera the indirect action of that epidemic. He also notices that in nine times out of twelve the barometer is much lower at the dates when the births are most numerous than when they are fewest. He asks, "Faut il voir, dans ce fait, l'indice que les accouchements sont favorisés par les jours pluvieux?"[1]

The following particulars are furnished respecting the returns of mort-nés in Paris so recently as June, 1871 (which, it will be remembered, was soon after the termination of the late war).

Recorded during June, 1871.

Total number of stillbirths . . .		182
Of these	4 were in the . .	3rd month
	4 „ . .	4th „
	6 „ . .	5th „
	18 „ . .	6th „

[1] 'Lancet,' Jan. 5, 1867, p. 20.

27 were in the . . 7th month
26 „ . . 8th „
84 „ . . 9th „
13 cases period unknown.

The large proportion of stillbirths in the ninth month is very remarkable and contrary to what we should expect under ordinary circumstances. Every one who has had any experience will, I am sure, agree with me that premature birth accounts for a larger proportion of stillbirths than any other cause. But considering the state of Paris shortly before these returns were published, and remembering how much the life of the infant is affected by maternal impressions and other circumstances, I think we are justified in considering the above as exceptional.

The following statistics are from the 'British and Foreign Medical Review,' page 593:

In Prussia the ratio of stillbirths . 3·29 per cent.
Sweden „ „ . 2·64 „
Saxony „ „ . 4·43 „
Hanover „ „ . 4·22 „
Mecklenberg-Schwerin „ . 3·70 „
Schleswig and Holstein „ . 4·60 „
St. Petersburgh, 1805 „ . 0·20 „
„ 1806 „ . 0·70 „
Russia generally „ . 0·80 „

These are very remarkable statistics: it would appear that the higher we ascend in the scale of civilisation the greater is the proportion of stillbirths. Appended to the above are the following additional particulars:—"There are more stillbirths of illegitimate than of legitimate children; it has been calculated that where 3·166 per cent. of the legitimate are stillbirths, 4·959 of the illegitimate are stillbirths. According to the calculations of Bickes—

Of legitimate male children 3·559 per cent. are stillborn.
Ditto female „ 2·749 „ „

Of illegitimate male children 5·277 per cent. are stillborn.
Ditto female „ 4·632 „ „

During the twenty-five years—from 1801 to 1825—the proportion of stillbirths to children born alive, was in Leipsic, 1 to 17⅔.

In 1822 it was—

In the district of	Liegritz,	1 to 15
	Arnsberg,	1 to 28
	Coblentz,	1 to 27
	Elberfeld,	1 to 17 (about 16 per cent.)
	Magdeburg,	1 to 18
	Dusseldorf,	1 to 26 (about 4 per cent.)
	Minden,	1 to 37
	Stralsund,	1 to 44½
	Erfurt,	1 to 30
	Merseburg,	1 to 21
	Posen,	1 to 49 (about 2 per cent.)
	Paris,	1 to 30
	Saarlouis,	1 to 16
	Vienna,	1 to 36⅓
In 1821 in	Berlin,	1 to 19
	Gotha,	1 to 10 (exactly 10 per cent.)

The highest average is thus 1 to 10, and the lowest 1 to 49; the general average is about 1 to 20.

Although from the want of a uniform system the above figures must be considered as open to exception, they suffice to show the necessity of a more uniform system. The great disproportions strongly suggest the question, "Whether stillbirths may not be considered to a considerable extent as preventible?"

Let us now examine the statistics of stillbirths in this country so far as we are in a position to do so.

The first statistics to which I shall refer are those published by the late Dr. F. H. Ramsbotham in the appendix to his 'Obstetric Medicine and Surgery.'

During the period of 1828 to 1850 (both inclusive), being a period of twenty-three years, the numbers were—

Total number of children born . .	49,538
Of these there were born alive . .	47,716
„ stillborn . .	1822

Proportion 1 stillbirth to 26$\frac{1}{5}$th living births, or 3·678 per cent.

Years.	Total births.	Stillbirths.	Proportion.
1828	2422	106	4·376
1829	2230	95	4·26
1830	2247	79	3·5
1831	2179	88	4·04
1832	2377	90	3·79
1833	2641	85	3·218
1834	2473	79	3·19
1835	2327	86	3·7
1836	2292	90	4·
1837	2166	87	4·01
1838	2161	85	4.
1839	2097	85	4·05
1840	2200	80	3·636
1841	2194	87	3·965
1842	2110	69	3·27
1843	2025	72	3·555
1844	1959	60	3·062
1845	1842	64	3·474
1846	1800	58	3·222
1847	1767	62	3·509
1848	1987	69	3·47
1849	2165	88	4·065
1850	1887	59	3·13

Highest average, 4·376; lowest ditto, 3·062.

The proportion of stillbirths is, as will be seen, very low, much lower than the general average of those countries from which the details we have given above have been derived. I have given the numbers for each year of the whole period of

twenty-three years, and also made a calculation to show the varying percentage of the stillbirth ratio. It will be observed that the first year of the series furnishes the highest average (4·376), while the last year furnishes the lowest average with one exception.

Of the stillbirths—

478	were	premature
230	,,	putrid at full time
253	,,	breech presentations
97	,,	transverse presentations
50	,,	under placental presentations
85	,,	,, accidental hæmorrhage
17	,,	forceps cases
60	,,	craniotomy
18	,,	born under convulsions
62	,,	,, very lingering labour
9	,,	,, ruptured uterus or vagina
128	,,	,, prolapsed funis
11	,,	,, face presentation
30	,,	monstrous

Although I have a very strong opinion that for a fully-matured child to be born dead when the head presents and there is no unnecessary delay is comparatively rare, yet I cannot but consider the above figures as most exceptionally favorable. I look upon a mortality of 4 per cent. as the lowest we can reasonably expect even in these days, where the more frequent and earlier application of the forceps must conduce very much to a reduction of the number of infants born dead. Of the above number the following must be considered as the numbers of unavoidable stillbirths :—

Premature	478
Putrid	230
Placental presentations	50
Accidental hæmorrhage	85
Craniotomy	60
Ruptured uterus, &c.	9

Prolapsed funis	128
Monsters	30
Total	1070

or a percentage of 2·159 on the total births; while a considerable proportion of the following must be considered as partly unavoidable:—

Breech presentations	253
Transverse	97
Convulsions	18
Face presentations	11
Total	379

leaving the following as what may be considered as avoidable cases of stillbirths:—

Forceps cases	17
Very lingering labour	62
Total	79

Of course I am fully aware that the above are open to exception. Thus, premature birth and prolapsed funis are not necessarily fatal to the infant; and it is possible that, had Dr. Ramsbotham been living now, the comparatively small number of stillbirths might have been even smaller still. But I am here dealing with generalities, and I think I am paying a proper tribute to that gentleman's unrivalled experience by presuming that every care and skill were exercised in order to preserve the life of child as well as mother.

I will now give the statistics of the Guy's Hospital Lying-in Charity as detailed by the late Dr. Lever in the 'Reports' of that hospital 1841 and 1849. The first septennial period comprises the years 1833 to 1840, both inclusive, and the first few years show the following results:—

Years.	Total births.	Stillbirths.	Percentage.
1833-4	174	13	7·471
1834-5	478	34	7·113
1835-6	630	34	5·4
1836-7	643	26	4·043

During the whole period of seven years the numbers were—

Children born alive	4432
„ stillborn	263
Total	4695

the proportion being 5·6 of stillbirths to every 100 children born. Dr. Lever contrasts this with Dr. Collins' statistics of the Dublin Rotunda Hospital, which show a percentage of 6·7 in a total of 16,651 births, and with Casper's statistics of foreign states which vary from 11 to 36 births for 1 stillbirth. Dr. Lever proceeds to give the following details respecting the above 263 stillborn children :—

First septennial period.

Vertex presentations	103
Face „	6
Premature labour	40
Breech presentations . . .	30
Foot „	16
Arm and shoulder	8
Arm with funis	2
Funis presentation	4
Placental „	7
„ with perforation . . .	1
Hydrocephalus	1
Delivered by vectis	1
„ forceps	5
„ perforator . . .	24
„ secale	4

Ruptured uterus	3
Flooding	2
Twins	6
Total	263

The statistics of the second septennial period comprise the years 1840-47, both inclusive, with the following results :—

Children born alive	6305
„ stillborn	353
Total	6658

or at the rate of 5·3 stillbirths in a total of 100 births. The cause of stillbirth for the second period is as follows :—

Second septennial period.

Vertex presentations	186
Face „	4
Premature labours	19
Perforation after induction of premature labour	2
Breech presentations	29
Feet	25
Knee	1
Shoulder and arm	5
Arm and funis	3
Funis	7
Placenta	5
Thorax	1
Vectis	1
Forceps	6
Perforator	32
Flooding before delivery	1
Convulsions „	5
Twins	20
Triplets	1
Total	353

There is, as will be seen, a slight improvement in the ratio of stillbirths for the latter period, though only at the rate of ·03 per cent. It seems to me that the rate of infantile mortality must be very considerably affected by the treatment adopted in the second stage of labour; if prolonged, the result must be hazardous to the child.

Let us look at the proportion of cases, where the forceps were applied, in Dr. Ramsbotham and Lever's statistics repectively.

	Total births.	Forceps cases.	Children living.	Children dead.
Royal Maternity Charity.....	49,538	73	56	17
Guy's Lying-in ditto, first septennial period	4,695	9	4	5
Ditto, ditto, second septennial period	6,658	23	17	6
Total.....	60,891	105	77	28

Let us now turn from the statistics of town practice to those of country practitioners. Very candid and full ones are given in the 'Lancet' for 12th November, 1859, by the late Dr. R. Uvedale West, to whose memory so graceful a tribute was paid by your late President in his annual address. The subject we are now considering attracted considerable attention thirteen years ago, and the following passage occurs in a leading article of the 'Lancet' for the 22nd October in that year 1869.

"In the Dublin Lying-in Hospital a record is preserved of stillbirths, and the important distinction is noted between children born dead and those born *dead* and *putrid*. During seven years the proportion of stillbirths in this institution was 1 in 14. Of the total number as nearly as possible one half were both dead and putrid; but hospital practice is but a fallacious test of what obtains in the homes of the population. Thus, in a clinical report of the Royal Maternity

Charity of London, addressed by Dr. Barnes to the Dublin Obstetrical Society, in which this question is examined, it is shown that in the practice of this Charity the stillbirths stood in the proportion of 1 in 34 only." (This it will be seen is a lower rate than that given by Dr. Ramsbotham as existing nine years previously, where the rate was 1 in 27.) The article proceeds, "Taking this as the basis of his calculation he estimated that there were not less than 2658 stillbirths annually in London, no account being taken of abortions. It is an object of the highest importance to test this conclusion by comparison with the experience of other institutions, and still better with the experience of private practitioners. If a certain body of medical men, such as those who constitute the Obstetrical Society of London, would collect their individual results, we might at once be in possession of facts on a scale sufficiently large to be enabled to define with some precision the prevalent rate of stillbirths." In consequence of the above remarks Dr. West published his statistics.

Total births	2998
Stillbirths	111

Or 1 in 27, or 3·7029 per cent.

Of these 111 stillbirths there were :—

Putrid at birth	50
Craniotomy cases	8
Footling cases	7
Funis prolapsed	7
Placenta prævia	3
Protracted labours left to nature . .	6
Forceps cases	2
Monstrosity	2
Accidentally suffocated before arrival . ,	2
Imperfectly developed head . . .	2
Anasarcous and ascitic . . .	1
Hæmorrhage during labour . . .	4
Convulsions „ „ . . .	2
Latent compression of funis . . .	1
Arm presentation and turning . .	1

Mothers moribund	3
Placenta putrid or diseased . . .	3
No apparent cause	7
Total .	111

In the concluding paragraph Dr. West, with a candour which reflects the greatest honour on his memory, says, "I have thought it important in the study of the causes and frequency of the mortality of children during labour to insert in my table the number of each case. It may thus be seen at a glance how far the inexperience of a young practitioner may contribute to an increase of such mortality. Let us for example examine the number of cases of craniotomy. It will be seen that all the cases that I was exclusively responsible for fall within the first 1000. How far a gradually acquired ability in the use of the vectis and forceps may have enabled me to discard this *wilful murder* from my practice I leave to the judgment of my readers, pointing out at the same time that *pari passu* with what I may call the abolition of craniotomy, or at any rate the greatly diminished frequency of the practice, the fœtal mortality from unassisted protracted labour disappears also from my practice. These are matters for grave consideration. . . . . I have fearlessly and without any extenuation given my experience of stillbirths, as invited by the leading article quoted. It is obvious that nothing but a sense of public duty, and a regard for the interests of absolute truth, can have induced me to parade, as I have here done, the shortcomings of my early career—'*Liberavi animam meam.*'"

A percentage of 4 per cent. is, according to Dr. West, the highest proportion which average county practices should exhibit. Dr. West's example was followed by Dr. Anderson Smith,[1] who gives a percentage of 4·924 stillbirths out of a total of 1320—

[1] 'Lancet,' Nov. 12, 1859, p. 481.

Total births	1320
Stillbirths	65

Or 4·924 per cent.

Forceps cases	25
Craniotomy	3
Version	4

Causes of Stillbirth.

Putrid	24
Malpresentation and position	10
Prolapsed funis	6
Craniotomy	3
Hæmorrhage before delivery	10
Compound presentation	1
Premature	5
Unaccounted for	6
Total	65

The relative proportion of living and dead children delivered by the forceps is not stated.

By Mr. Hadaway, who shows a ratio of 10 per cent. in 732 cases—

Total births in the five years 1855-9, both inclusive	732
Stillborn	72

Or 10 per cent.

Detailed as follows—

Year.	Births.	Stillbirths.
1855	93	6
1856	129	16
1857	171	20
1858	169	18
1859	170	12

Causes of the 12 *stillbirths in* 1859.

Premature (seventh month)	4
Footling and cord	1
Supposed fright to mother	2
Unknown	5
Total	12

Mr. Lambden, who gives a ratio of 3·319 in 482 cases—

Year.	Births.	Stillbirths.
1855	90	4
1856	114	1
1857	88	2
1858	101	3
1859	89	6
	482	16

Or 3·319 per cent.

Details of the above 16 cases of stillbirth:

1855	Putrid	1
	Turning	2
	No cause	1
1856	Putrid	1
1857	Arm and funis	1
	Placenta prævia	1
1858	Placenta prævia	1
	No cause	1
	Turning	1
1859	Putrid	3
	No cause	2
	Version	1

Dr. Smith cites his number of forceps cases, 25 in 1320, as high, but states that no ill effect followed. I think we

are all agreed that a much higher percentage of forceps cases would not only fail to startle us, but would very probably enable us to dispense with unaccounted cases altogether, or considerably to reduce their number.

To sum up the results of the foregoing we find that continental statistics give a general average of rather less than 5 per cent., which must be considered small when we remember that this ratio includes abortions in some countries, and premature children born alive in others; while in the statistics of British practice, which I have been able to procure, the stillbirths, pure and simple, range from 3 up to 10 per cent. I have already alluded to the small number of forceps cases in the statistics given by Dr. Ramsbotham, of the Maternity Charity practice, and by Dr. Lever, of those of the Guy's Lying-in Charity. The former gentleman attributes 62 stillbirths as due to "very lingering labour," and it is lamentable to contemplate the fact that of 49,538 births the forceps cases numbered only 73, while the cases of craniotomy reached 60. Again, Dr. Lever gave us 9 cases of forceps and 24 cases of craniotomy in 4695 births; while in 6658 births he gives 23 cases of forceps and 32 of craniotomy. Out of the first series we have 103, out of the second 186, together 289 stillbirths where the vertex presented, which were neither forceps nor craniotomy cases, and which were, no doubt, cases of lingering labour. From Dr. Churchill's statistics I find that the forceps cases in British practice were as 1 in 171; in French practice, 1 in 140; in German practice, 1 in 106; and the results to the children born are shown as follows:

	Forceps cases.	Children lost.	Percentage.
Dr. Ridler . . .	4223 ...	684 ...	16·197
Dr. Siebold . .	312 ...	47 ...	15·064
Dr. Harper . .	302 ...	43 ...	14·238
Dr. —— . . .	232 ...	28 ...	12·07
Drs. Johnston and Sinclair .	200 ...	29 ...	14·5
Prof. Schwerer .	194 ...	48 ...	24·472

	Forceps cases.	Children lost.	Percentage.
Dr. Beatty, senior	111	0	
Madame Boivin	96	20	20·833
Dr. Pagan	82	19	23·1708
Madame Lachapelle	79	23	29·114
Dr. F. Ramsbotham	73	17	23·287
Dr. Smellie	52	9	17·308
Dr. Roberton	43	7	16·28
Dr. R. Lee	42	31	73·81
Dr. Arneth	45	14	31·111
Mr. Smart	30	13	43·333
Dr. Brunatti	23	6	26·08
Dr. Lawrence	28	4	14·285
Dr. Merriman	21	6	28·571
Dr. Ritgen	20	4	20·
Dr. Boer	19	5	26·316
Mr. Perfect	18	4	22·222
Drs. Hardy and M'Clintock	18	8	44·444
Dr. Hall Davis	15	3	20·
Edinburgh Lying-in Hospital	15	5	33·333
Dr. Churchill	9	0	

It will be seen at a glance that, with few exceptions, the percentage is lowest where the number of forceps cases is the highest, and Mr. Harper has shown this very conclusively in a paper read before this Society thirteen years ago on "The Use of the Forceps as a Means of Lessening Mortality." The results to the children are thus summarised by Mr. Harper, who contrasts his practice with that of Drs. Collins, Hardy, and Johnstone respectively:

Forceps cases.	Fœtal deaths.	Maternal deaths.	Forceps duration.
Collins 1 in 694	1 in 26	1 in 329	38 hours.
Hardy 1 in 355.....	1 „ 20	1 „ 334	35½ „
Johnston 1 in 60	1 „ 35	1 „ 502	29½ „
Harper 1 in 26.....	1 „ 47	1 „ 1490	16 „

I have preferred to give the results of practitioners of experience in preference to any of my own, which comprises too small a number of cases and too short a period upon which to form data. But, speaking generally, I may say that I have invariably been able to account for stillbirth after a labour at the full time with a vertex presentation, by delay in seeking medical assistance, and I hope on a future occasion to bring the results of my experience before this Society. But for the present I think enough has been said to show conclusively that a more frequent employment of the forceps must tend to reduce the number of children stillborn.

From inquiries I have made at the local cemeteries and burial grounds I find that the number of stillborn infants annually interred there amounts to at least 6 per cent. on the total number of births occurring annually within the borough, but this must be considered as below the actual number, as it must be impossible for any one but an official inquirer to acquire full and accurate information.

I have already stated that the registration of stillbirths in this country is contemplated and under the consideration of the president of the Local Government Board. I trust that the Fellows of this Society will agree with me that it behoves us to anticipate this proposed measure, and make such suggestions as shall enhance the value of the returns made. The registration of stillbirths is desirable on three grounds—1, medico-legal; 2, obstetrical; 3, statistical; which may be again subdivided as follows:

1. Medico-legal.

(*a*) To place a check upon abortion, fœticide and child murder, by preventing the burial of any stillborn infant unless full particulars of the birth were furnished to the district registrar.

(*b*) To prevent frauds upon the authorities at cemeteries and burial grounds by false certificates of stillbirth.

2. Obstetrical.

(*c*) To enable us to judge of how far stillbirths are preventible by

(*d*) The proportionate ratio in the practice of medical men and midwives, and the qualifications of the latter;

(*e*) The relative ratio in town and country, and in different districts of the same town and country;

(*f*) The proportion of stillbirths due to syphilis;

(*g*) The effects of premature, protracted, complex, and instrumental labour upon the stillbirth rate.

3. Statistical.

(*h*) To obtain more accurate returns than at present is possible of children actually born living or dead. At present children born living are interred as stillborn to an extent quite unknown, and sufficient to make a considerable difference in the returns of birth.

(*i*) To enable us to compare our returns with those of continental and other states.

Many other advantages may be looked for from this proposed amendment of our Registration Act, but the above are sufficient to recommend it to the legislature on the one hand and to ourselves on the other, as calculated to afford us material of great use to us in an obstetric point of view. I hope the subject will be considered of sufficient importance to justify me in asking that a committee may be formed of Fellows of the Society, whose duty it shall be to collect

statistics of stillbirths as at present known; to consider how the proposed registration may be effected so as to ensure all the desired information; to suggest the necessary forms of certificates for medical practitioners and midwives; and to urge upon the President of the Local Government Board that no further delay may take place in securing for the country by compulsory measures the registration of all births whether of living or of dead children.

Dr. PLAYFAIR said that it was to be regretted that the late hour of the evening did not admit of a proper discussion of Mr. Lowndes' paper, since no subject was more worthy of the consideration of the Society. The paper was a most valuable one, displaying much labour and research. It was unfortunate that, in considering the statistics of private practice, the author had overlooked the very remarkable results obtained by Dr. Hamilton, of Falkirk, which would have materially strengthened his position that the number of stillbirths diminished in exact ratio to the frequency with which the forceps were applied. That gentleman habitually used the forceps in about the ratio of one to every seven or eight labours, and he has obtained the entirely unprecedented result of as many as 731 consecutive labours without a single stillbirth. When we compare this with the average fœtal mortality of 4 per cent., which Mr. Lowndes arrives at, the result is startling indeed, and seems to point strongly to the conclusion that many fœtal lives are sacrificed to a needless dread of timely interference. He (Dr. Playfair) believed that the modern teaching, that the labour should not be allowed to drag on many weary hours in the second stage, was thoroughly correct, and if more developed, would materially diminish the general average of infantile mortality, without in any way increasing the risk to the mother.

NOVEMBER 6TH, 1872.

JOHN BRAXTON HICKS, M.D., F.R.S., President, in the Chair.

Present—50 Fellows and 8 Visitors.

Books were presented by Dr. Lombe Atthill, Dr. Graily Hewitt, Dr. F. Hogg, R.H.A., Dr. Lloyd Roberts, Mr. Spencer Wells, Dr. Emil Noeggerath, Dr. F. Verardini, the Clinical Society, the Royal College of Surgeons, &c.

The following gentlemen were elected Fellows of the Society: Arthur H. W. Ayling, L.S.A.; Albert F. Field, M.R.C.S.; Henry Harris, M.D., Redruth; George Mendenhall, M.D., Cincinnatti; and Joseph Szczygielski, Warsaw.

TUMOUR OF THE UTERUS COMPLICATING PREGNANCY.

By J. LUCAS WORSHIP, Esq.

C. C—, æt. 35, married two years and a half. Generally enjoyed good health. Has lost eight brothers and sisters in early life. Has five sisters living, all at present in good health, and having, many of them, large families. Can trace no history in her family, on either paternal or maternal side, of any tumour or cancer.

Six months after her marriage had very severe pain in the left iliac fossa; there was no enlargement, and, although at times the pain was very acute, she continued in service, acting as charwoman, and sought no medical advice. Last catamenial period five months ago, August 1st. Three months ago observed slight enlargement of the abdomen, but did not think she was pregnant, and the pain became much worse. She now saw a medical man who, I believe, considered her to be suffering from ovarian disease. I saw her on August 1st, the abdomen was then the size of a woman in the seventh month of pregnancy. I examined her per vaginam and failed to discover anything abnormal; the os uteri was very high up and back towards the sacrum, the cervix was not elongated, and I did not think she was pregnant. The mammæ showed no signs of enlargement nor any increase of areola round the nipple. She could only lie on her left side, and her only complaint was of the acute pain in the left groin, difficulty in breathing, and constant vomiting. Pressing the tumour laterally it gave one the impression of a solid mass, quite inelastic and very painful to the touch. I thought there was little doubt, from the rapidity of its growth and the intense pain, that it was a malignant tumour of the left ovary.

Beyond giving her morphia and medicine to try and allay the sickness, I adopted no treatment, feeling sure that beyond alleviating pain no good could either be done by medicine or surgery.

She gradually became worse and worse, retaining nothing many minutes on her stomach, and often the character of the matter ejected was stercoraceous and exceedingly offensive. She was much emaciated and died on October 4th.

On October 6th, in the presence of my friends Messrs. Thompson and Pearless, I made a post-mortem examination. On opening the abdomen we found a large tumour, reaching from the pubis to the diaphragm, of a yellowish colour and of the shape of an hourglass, the upper division being very much larger than the lower. We took out the uterus as the specimen here shows, and found the os uteri filled with the usual plug of pregnancy, and on slitting up the organ

found an unruptured bag of liquor amnii of a deep claret colour, and the fœtus in it. The skin of the fœtus appeared shrivelled, as if it had been dead some little time. On the posterior surface of the uterus are some solid tumours. We then made an incision into the tumour, which was very tough and full of cysts containing a greenish, viscid fluid. The ovaria appeared healthy and in their natural positions, but very small.

The PRESIDENT referred to a case of labour complicated with a large fibroma, attended by Mr. D. Taylor, in which the labour was perfectly normal.

Dr. PHILLIPS said that large fibroid masses at the fundus uteri generally interfered materially with efficient uterine action. The specimen exhibited was interesting as another illustration of the difficulty of diagnosing between fibrocystic disease of the uterus and multilocular ovarian tumour. He asked whether fibrocystic tumours of the uterus had ever been noticed to suppurate and discharge at regular intervals. There was now at Guy's, under his care, a case of uterine tumour extending high above the umbilicus but at intervals, generally of about four or six months there was a profuse discharge of blood and then of pus, and the tumour diminished to about half its size. The subsequent increase was gradual, and a similar increase and decrease had been noticed on several occasions, as the patient has been under observation for some years.

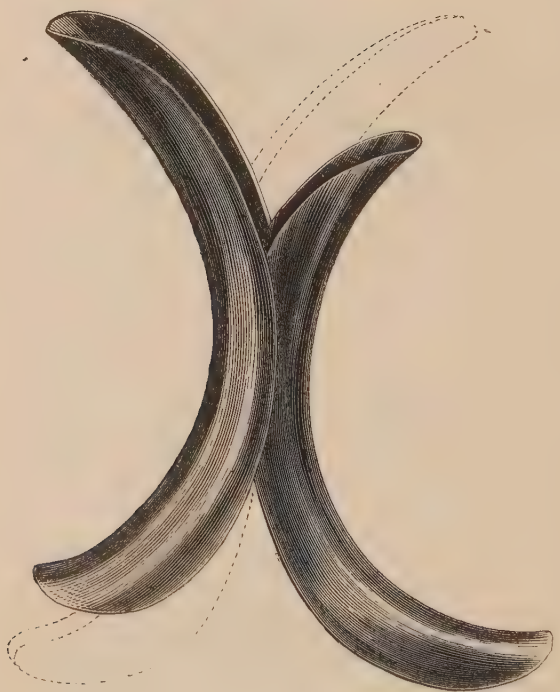
Dr. PROTHEROE SMITH said, to aid Dr. Phillips's inquiry as to the probable escape per vaginam of the fluid contents of fibrocystic growths of the uterus, he would mention by way of illustration three cases, the first was a patient of Dr. Blackburn of St. Bartholomew's Hospital who had a single abdominal tumour which became diminished in size and tension on the escape of considerable quantities of watery discharge per vaginam at irregular intervals. Having left town without any alteration in her case he lost sight of her. Another patient afflicted with the same symptoms of hydrometra of the uterus measured four inches by ten round, has experienced a like increase and diminution of a tumour continuous with the uterus which at one time reaches to the umbilicus and at another is felt only two inches above the pubes, and the condition has existed more or less for seventeen years. The third case, with much less uterine enlargement, gave a similar history, but though admitted into the Hospital for Women for three months there was during this time no discharge of water. In these and other cases, however, he had not the opportunity of ascertaining the fact by autopsy.

Dr. Wynn Williams exhibited a pessary for the treatment of flexions of the uterus, more especially ante- and latero-flexions. He was led to adopt the mode of treatment recommended through hearing the late Dr. Beaty, of Dublin, at the meeting of the British Association at Plymouth, recommend after the introduction of a stem into the uterus the placing of a round boxwood pessary for it to rest upon in the vagina, which prevented the extrusion of the stem, and on which it moved in a circular groove. This mode of procedure Dr. Wynn Williams found very inconvenient. The introduction of the boxwood pessary into the vagina of a virgin was no easy matter, and when there you could not ascertain the exact position of the stem and consequently of the uterus. To obviate this Dr. Wynn Williams got Messrs. Krohne and Sesemann to fit a diaphragm of india rubber, so as to fill up the centre of an ordinary Hodge's pessary, or, if preferred, Dr. Greenhalgh's modified Hodge. The one exhibited is Dr. Greenhalgh's, and in the unmarried it is certainly the one to be selected on account of its being much more readily introduced. Having adopted the usual measures and introduced a stem according to the fancy of the operator (the one used by Dr. Wynn Williams being a simple light vulcanite one), the pessary exhibited is introduced and placed in front of the stem. The position of the uterus can be readily ascertained by feeling the button of the septum through the india-rubber septum, and if too high can be easily coaxed downwards by the finger, and *vice versâ*. The septum makes a very safe elastic bed for the button of the stem to rest upon, and when fixed in position the depression made by the button prevents any movement beyond that allowed by the elasticity of the thin septum of india rubber. The retention of the discharge is obviated by perforations in the diaphragm.

Mr. Scott thought the instrument an ingenious one, but had himself used with success a simple Hodge's pessary for the purpose of keeping the os in the required axis after the introduction of an intra-uterine stem in cases of ante- or retro-flexion.

PESSARY EXHIBITED BY DR. WYNN WILLIAMS. (*p.* 308.)

FIBROID TUMOUR REMOVED FROM THE VAGINA. (*p.* 309.)



NEUGEBAUER'S SPECULUM. (*p.* 309.)

Dr. Barnes exhibited a fibrous tumour the size of a large orange which he had removed a fortnight before from the anterior wall of the vagina. Its attachment began just above the meatus urinarius, extending along the course of the anterior wall, but leaving a space of an inch quite clear below the os uteri. It had been extended outside the vulva. It was removed at St. Thomas's Hospital by the galvano-caustic wire. The woman did perfectly well. It was shown as an example of a comparatively rare affection.

Dr. Barnes also exhibited a modification of Neugebauer's speculum, which he had devised to obviate one or two practical objections to Neugebauer's excellent instrument.

REMARKS ON THE TREATMENT OF SOME FORMS OF EXTRA-UTERINE GESTATION, WITH A CASE.

By Alfred Meadows, M.D.,

PHYSICIAN-ACCOUCHEUR TO, AND LECTURER ON MIDWIFERY AT, ST. MARY'S HOSPITAL; PHYSICIAN TO THE HOSPITAL FOR WOMEN.

In the last volume of our 'Transactions' I recorded a case of extra-uterine fœtation of the so-called ventral variety, and in the remarks which I made in regard to the treatment of that condition, I advocated more frequent resort to surgical interference in the way of gastrotomy, not so much in order to arrest hæmorrhage, and so to try and rescue the patient from a perilous condition, in those cases where rupture of the cyst has occurred, but rather with the object of anticipating that rupture, and of averting the calamity which generally happens under these circumstances. I may remind the Society that in the case referred to a so-called ventral pregnancy was diagnosed during life and was revealed by post-mortem examination; rupture occurred at about the eighth

month of gestation, death from hæmorrhage resulted, and it was then found that the placenta was formed by or upon the enormously hypertrophied fimbriated extremity of one of the Fallopian tubes, part of which had burst. My contention was that, in such a case, as well as in many others of the tubal variety, the obstetric rule should be, when once the diagnosis is clearly established, to open the abdominal cavity, and treat the case surgically, as we would do an ovarian or other tumour where removal was possible, the avowed object being to anticipate and so to avert the almost inevitably fatal rupture of the cyst and death from hæmorrhage. On that occasion I expressed my intention, should any similar case occur to me, of following this practice. Such a case has occurred and is the subject of this communication, and although in my absence it came under the care of my colleagues, Dr. Squarey and Mr. Scott, they have kindly agreed to my bringing it under the notice of the Society, in order that I may again advocate what I suggested last year; with, however, some modifications which the experience of this case seems to me to support.

It may appear strange that I should bring forward a case in which I had only a nominal share; but instances of the kind fall so seldom to the lot of any of us, that were I to wait for another, it may be that I should have no opportunity of suggesting what I now do; and if there be any worth in the proposal others may perchance be inclined to adopt it, in the event of any similar case occurring in their practice.

The case is as follows:

E. F— came to me as an out-patient at the Hospital for Women, March 22nd, 1872. She was 23 years of age, had been married two years, but had had no children, and since her marriage had suffered rather severely during menstruation; it was for this she came to the hospital. On examining per vaginam I found that the uterus was rather low in the pelvis, the cervix being near the vulvar orifice, while the fundus was directed to the sacral cavity; there was slight retroflexion; the os was small and circular, and the parts generally were rather tender.

On April 5th she came again, when the following note was made: "Last menstruation was very profuse; since the last visit pain has been severe; expects the catamenia in a week." She did not come to the hospital after that, but I learned that the expected catamenial period did not occur, nor did it afterwards reappear. Her subsequent history is thus described by Dr. Macpherson, of Mildmay Park, under whose care she was. He writes, "On the 12th May she had severe abdominal pain which lasted about a week. On recovering she felt remarkably well up to September 25th, when she called on me at my house complaining of pain. This continued at intervals, but was at first unaccompanied by fever. The abdomen was tender to the touch, and there was a slight red discharge—just a drain at intervals. The pain was not continuous at first; there was vomiting; the bowels and bladder acted freely and easily. From the time when I first saw her I noticed that the tumour in the abdomen could easily be pushed up by pressure with the finger in the vagina, but it gradually came back again on to the finger. The small swelling noticed in front was not always present to the eye."

As the patient continued to get worse, Dr. Macpherson sent for me, and in my absence Dr. Squarey went on the 5th of October, 1872. From him I received the following notes. Since the cessation of the catamenia in March last the patient has suffered more or less constantly from cramping pains in the abdomen; from that date she noticed also that the abdomen has steadily increased in size, and she herself believed that she was pregnant; at first she was very sick, and has been so more or less throughout: from the frequency of the cramp-like pains she had for some time thought that things were not quite straight. When first seen by Dr. Squarey she was suffering most intense pain in the abdomen, and this had been going on since September 26th, though it was much worse when Dr. Squarey was consulted.

On examination the abdomen was much distended, and of an oval shape; there was dulness over the whole anterior surface of the abdomen up to within two or three inches of

the ensiform cartilage, where it was resonant, as also in both flanks; no fluctuation existed low down on the left side; the abdomen was seen to become locally prominent every now and then, when the pain was severe. On careful manipulation of this swelling a small tumour could be distinctly felt there; it was slightly movable from side to side, and seemed to roll a little over the larger and deeper tumour. The smaller swelling was believed to be the uterus enlarged, but the abdomen was altogether so tense and tender that no solid mass could be diagnosed per vaginam; a hard and at first somewhat elastic mass could be felt filling the whole of the posterior part of the pelvis, and pushing the uterus forwards against the pubes. The hard mass to the left was movable to some extent, but pressure caused so much pain that this was not thoroughly tested. The cervix uteri was soft and spongy as in pregnancy, the os was patulous, and the finger could be passed in some distance within the cervix; while there the tumour behind the uterus could be distinctly felt, and gave the impression of being entirely outside the uterus. The breasts were somewhat enlarged and the areolar changes distinct.

The diagnosis arrived at was extra-uterine pregnancy, founded upon the size of the abdomen, the absence of the catamenia, the constitutional disturbance, and the vaginal examination. The mass behind the uterus was believed to be the fœtal head.

By Dr. Squarey's advice the patient was at once admitted into the Hospital for Women, and, not wishing himself to operate, should an operation be deemed advisable, he sent for my colleague, Mr. Scott, who, finding the patient comparatively free from pain under the influence of a subcutaneous injection of morphia, determined to wait for a time. A careful examination was, however, made of the condition of the abdomen, the result of which was to confirm in all essentials, the diagnosis arrived at by Dr. Squarey. No fœtal heart could anywhere be heard, but a loud bruit synchronous with the maternal pulse was audible over the right side of the abdomen.

In a few hours' time the effect of the morphia passed off, and very severe pains of a distinctly intermitting character, like those of labour, came on. During these pains the tumour in the vagina became so very tense as to suggest the probability of its rupturing. The uterine sound was used, and the uterus found to measure fully five inches, the sound passing in the direction of the tumour on the left side of the abdomen, where its point could be distinctly felt. After anxious consultation, the condition of the patient being indicative of extreme peril, it was decided to perform gastrotomy with the view of recovering the fœtus and its containing cyst. The patient was accordingly placed under chloroform, and a free incision was made through the abdominal parietes a little to the right of the mesial line, so as to avoid what was believed to be the uterus on the left. On opening the abdomen the uterus was exposed, lying in front and to the left of the gravid cyst, and it was seen to contract firmly and regularly as if in labour. The cyst was adherent along the whole right side of the uterus by means of a firm fleshy band, but on the left side the hand could be easily passed between it and the cyst. The latter was seen to be intensely vascular, and though adherent to the abdominal wall the adhesions were but slight and were easily broken down, though the bleeding which followed was so free as to cause very alarming symptoms; several vessels—chiefly veins—had to be tied during this part of the operation. An incision was then made into the cyst, and a well-formed living fœtus was removed, having all the characters of at least seven months' gestation. The funis was tied in the usual way, and on examination the placenta was found attached deep down in the cyst in the direction of Douglas's pouch, and on the right side. After some difficulty it was removed, but the hæmorrhage during this time was so severe that at one time it was feared the patient would not survive the operation. It was observed, however, that as soon as the placenta was detached all bleeding ceased, though it seems doubtful whether this was due to the detachment, or whether it resulted from the syncopal condition of the patient consequent

upon the loss of blood. An attempt was now made to remove the cyst, but this could only be partially effected and that with very great difficulty; a large part of the cyst was necessarily left owing to the firmer adhesions to the intestines, to the uterus, and to the pelvic wall. The cavity was now carefully cleared out, the edges of the abdominal wound were brought together in the usual way, and the patient put to bed, stimulants being freely administered. The shock, however, was so severe and the hæmorrhage so excessive that consciousness hardly returned, and the patient sank five hours after the operation. The child died next day.

A post-mortem examination showed little or nothing more than had been made out during the operation. No hæmorrhage had occurred after it; death was, therefore, the result of shock and of the loss sustained in the operation. The cyst which had contained the fœtus was situated, as before described, on the right of the uterus, and was formed below by Douglas's pouch, where the placenta had been attached. The uterus, much enlarged in all directions and measuring fully five inches in length, was pushed to the left of the pelvis; the ovary and Fallopian tube on the left side were perfectly normal. Those on the right side had been removed with part of the cyst during the operation, but it seemed likely that the right Fallopian tube had been in some way involved in the accident, as the portion which still remained was so dilated that its uterine orifice readily admitted the passage of the sound. The mucous membrane of the uterus, especially about the fundus and upper part of the body, was enormously hypertrophied so as to look almost like a cluster of mucous polypi.

Remarks.—Now, it may perhaps be thought that the only lesson to be learnt by this case, distressingly sad as it is in every aspect, is that it would be far wiser under similar circumstances not to interfere, at least not by any surgical proceeding, and certainly not to resort to gastrotomy. That, on the contrary, the rule should be to stand by and wait, until either rupture has occurred and the life of the patient is in imminent danger, when and when only gastrotomy

should be performed ; or else that we should try to temporise, combat the effects of the shock of rupture, if rupture occurs, in the hope that, after the death of the fœtus, it may again, if it has before escaped into the peritoneal cavity, become encysted in the process of inflammation, and gradually be absorbed—so far, at least, as that is possible ; or, lastly, if happily rupture does not occur, and nature, as we call it, makes no violent effort to rid the patient of her unnatural offspring, then we may hope that time will render that innocuous, and recovery ensue, though it be the work of years.

Of course either of these three courses is open to us, and each will probably have advocates, because much may be urged in its favour. I believe that the operation which was performed in the case just related was in strict accordance with obstetric rule ; the patient's sufferings were extremely severe, rupture was threatening, severe hæmorrhage must then have ensued, and no one can pretend to say that under such circumstances the patient's chances of life would have been better than they were by resorting to the operation before the rupture occurred. But, if the danger to the patient in the performance of gastrotomy be, as I contend it is, considerably greater after than before the occurrence of rupture, there is another and, to my mind, a very cogent reason why this operation ought not to be delayed, namely, the hope that in the one case we may rescue a living child, while in the other there is very small chance of it. To me it seems an imperative duty that when we know we have not only a living but, according to all experience, a viable child, say at the seventh month and upwards, we should do our very utmost to rescue that life from its position of danger ; and I do not think we are justified by the very small number of recoveries in cases where the fœtus has remained in the abdomen, in standing by and doing nothing.

If, then, resort to gastrotomy is to be, as I hope it is, the recognised and orthodox rule, in all cases of so-called ventral or other form of extra-uterine pregnancy, where the child is living and has arrived at what is termed a viable age,

it becomes a question of the deepest importance to know whether we can by any means lessen the formidable character of the operation and diminish its fatality. I believe that we can, and in the following way. It will be, perhaps, in the recollection of some of the Fellows that, when speaking on this question last year, I threw out the suggestion that inasmuch as after the removal of the fœtus there is no longer any physiological necessity or use for the placenta, we might safely leave this to be afterwards atrophied and absorbed, taking care to tie the cord and cut it off as near to its attachment as possible. I advocated this on the ground that by so doing we should obviate one of the greatest, if not the greatest, source of danger, viz. the hæmorrhage which results from the attempt to detach it. Since I made this suggestion I have thought much about it, and I still fail to see any valid reason against at least making the experiment. The experience of this last case has led me still further in this direction. There cannot be a doubt, I think, that this poor woman died of hæmorrhage; much of that hæmorrhage came from the placental surface, but a great deal of it also came from the attempt which was made to remove the cyst in which the fœtus had been developed; a great part of that cyst was removed, but much still remained, and I believe it will be found probably in every case absolutely impossible to remove it all. It is this great danger resulting from the adhesions which exist everywhere in all directions, and the attempt to separate which has always added so enormously to the difficulties of the operation, and to its danger from hæmorrhage, that has, I believe, deterred most operators from resorting to it. Why not then make a virtue of a necessity, and leave it alone? I see no reason why this should not be, and surely if we can trust some cases to the absorption of all the absorbable part of the fœtus itself, *à fortiori* may we leave the highly organised cyst and the still more highly organised placenta to the same process. It seems to me that this high organisation is a strong point in favour of this method, because it would probably favour absorption, and maintain its vitality till that process were completed. It

needs no argument to prove that if this suggestion be at all feasible, and if experience should demonstrate its practicability, the operation of gastrotomy will not only be the rule, but it will be one which can be carried out with the greatest ease, for it will present, comparatively speaking, few difficulties and will be shorn of its greatest danger. It will only be necessary to make the incision through the abdominal wall, then through the cyst, remove the fœtus, tie and cut the cord as near the placenta as is convenient, remove any bloody or other fluid, taking great care not in the least to detach or otherwise disturb the placenta, secure any vessels that may be cut in the incision, and close up the wound in the ordinary way, as after ovariotomy, treating the patient subsequently in the same manner.

Should this method not be found to answer, it might be a question whether the abdomen, with the cyst attached to the edges of the wound, should not be left open. The former plan, however, seems to me to offer the best chance of a successful issue; and I trust if the occasion occurs to any of the Fellows they may be willing to put it in practice, provided that what I have said in its favour commends itself to their judgment as it certainly does to mine.

Note.—Since writing the above my attention has been called to a paper by Mr. Cooke on a case of uterine and extra-uterine pregnancy, progressing simultaneously to the full period of gestation, in the fifth volume of our 'Transactions,' in which it is suggested "whether, supposing the existence of extensive adhesions to be admitted, it is advisable to remove the fœtus with the prospect of some portion of the liquor amnii, finding its way into the peritoneal cavity, and with the possibility of the placenta becoming encysted (the cord being brought through the abdominal incision), and being thrown off at a future period." And in the discussion which followed it was suggested by our present President (Dr. J. Braxton Hicks) that in cases where the child was living "it would be an important question whether it should not be recovered by abdominal section, in the manner suggested in

the above paper, stitching the edges of the opening of the cyst to those of the outer wound before removing the child, leaving the placenta to come away of itself." It thus appears that an idea something similar to, but not identical with, the suggestion I now make has occurred to others before. I venture to think, however, that my proposal to close up the abdomen after extraction of the child, and to leave both cyst and placenta to future atrophy and absorption, offers a better chance of success, is in strict accord with the teachings of physiology, and does no violence to any known pathological law. As such I trust its adoption may hereafter be found practicable.

Mr. Scott.—In the case under discussion the danger of rupture of the cyst was imminent. As to the nature of the operation which should be performed in a similar case of advanced fœtation, looking at the extensive and firm character of the adhesions in every direction, he had no hesitation in giving his entire approval to Dr. Meadows' view as far as leaving the cyst was concerned. With regard to the placenta he did not feel so assured. It was a remarkable fact in this case, which he could not explain, that after the entire removal of the placenta all bleeding within the cyst ceased.

The President observed that in a previous discussion he had pointed out the danger of removing the cyst, and that in three cases in which he had operated the fœtus only had been removed.

Dr. Murray thought there was too much risk incurred in completely closing the abdominal opening and leaving the placenta behind without any chance of escape. In the case reported there seemed no doubt that the cyst containing the fœtus showed signs of contraction; it might therefore be fairly presumed that the same contractions noticed might continue after the removal of the fœtus, and by this means the placenta could be partially or wholly separated, and give rise to serious trouble and danger. He would certainly prefer leaving an opening with the umbilical cord passing through it, similar to the method of dealing with the pedicle in ovariotomy when it is clamped, which would meet fully and more safely the difficulty in question.

Dr. Barnes observed that Dr. Meadows' case was scarcely required in order to prove that the removal of the cyst or placenta was bad practice. This had been settled by experience. Dr. Ramsbotham especially insisted upon this at an operation performed by his advice in the London Hospital by Mr. Adams

at which Dr. Barnes was present. The placenta was left untouched, and the woman made a good recovery. The adhesions of the placenta to intestines was often so intimate, there being sometimes no definite sac, that the attempt to detach it must necessarily invoke considerable risk, and experience has shown that, if left *in sitû*, it would be removed safely by natural processes.

Dr. Protheroe Smith said that Dr. Meadows justifies his plea for the adoption of gastrotomy in the cases under discussion, when the child is viable, by the hope of saving one if not two lives which are imperilled, and he fully admitted the correctness of his conclusion. Dr. Barnes had, however, remarked that under any circumstances demanding such surgical interference, the less done the better. Agreeing to some extent with this observation, Dr. Protheroe Smith begged to make another suggestion by which we may rationally hope to aid those natural efforts to effect that process by which this abnormal condition has been often brought to a favorable issue. The bulk of the swelling and the tension of the cyst may be easily reduced by the use of the aspirator without risk of the admission of air; and thus, by a very simple operation devoid of all danger, one is enabled to aid that compression of the fœtus and its appendages which is best calculated to lead to those changes and results which are known to terminate in restored health to the patient.

Dr. Madge said that in extra-uterine pregnancy the placenta was bound by adhesions to the part to which it was fixed. To break up these adhesions by forcibly separating the placenta and exposing the enlarged and highly congested vessels in apposition with its maternal surface, would—from hæmorrhage into the abdominal cavity—itself be sufficient to cause death. He therefore strongly urged that in future operations of a similar nature the placental attachment should be left undisturbed.

Dr. Snow Beck observed that on looking at the preparation the right Fallopian tube was divided about the middle, and inquired what had become of the outer half, when it was stated the tube had been ligatured and the outer half removed with the cyst at the time of the operation. He remarked that the uterus and Fallopian tubes were lined by a tissue which appeared to be *sui generis*, and it was a question whether any other tissue of the body would respond to the stimulus of the impregnated ovum, and form the maternal portion of the placenta. Should this view on further observation be found to be correct, it resulted that there was but one form of extra-uterine fœtation, which would occur in some part of the Fallopian tube. Not unfrequently the ovum was arrested at the fimbriated extremity, when the fimbriæ became enormously enlarged, formed the principal part of the sac, and the inner surface was developed

into the maternal portion of the placenta. This took place in the "Case of Extra-Uterine Gestation," reported by Dr. A. Meadows in vol. xiii of the 'Transactions.' Sometimes the ovum escaped from the Fallopian tube as it became developed and lay loose in the cavity of the abdomen surrounded by its membranes, as in the "Case of Uterine and Extra-Uterine (Fimbrial) Pregnancy" reported by Mr. L. R. Cook in vol. v of the 'Transactions,' where "the placenta occupied the inner surface of the fimbriæ of the right Fallopian tube which had expanded into a shallow capsule for its attachment, leaving the containing membranes of the fœtus free from any covering" (p. 150). In the present case it was probable that the fimbriated end of the tube was expanded over, and formed part of, the containing sac, which formation would account for the tension observed in the contained fluid and caused by the contraction of the contractile tissue of the tube. This tension, which was described as resembling the tension of the membranes during a contraction of the uterus, would be difficult to account for unless the sac contained some contractile tissue, which was probably derived from the Fallopian tube, as no development of the cellular or fibrous tissue in the neighbourhood would produce the effect described. If this explanation was correct, then the tissue at the inner surface of the tube would be developed and form the maternal portion of the placenta, as in the preceding cases referred to.

Dr. Wynn Williams considered it advisable in all cases to follow the operations of nature as closely as may be; on various occasions nature has got rid of the more solid parts of the fœtus such as the bones, &c., by the several outlets of the body, the soft parts, such as the sac and placenta, forming a harmless mass. The plan recommended by the President would appear to be the nearest approach to what nature does and the most feasible, namely, to remove the fœtus, not to interfere with the placenta, and to stitch the walls of the sac to the sides of the incision in the abdominal walls, taking care to pass the stitches through the peritoneum as in ovariotomy. There would then be a communication with the sac for the escape of any offensive matter, whilst the peritoneum would be completely protected from external influences.

Dr. Phillips, while admitting that simple tapping had been successful in some cases, feared from what was known of the secreting power of the amnion that it would not in all cases be sufficient; and even if it led to the death of the fœtus, the child's body had still to be disposed of by long and exhausting, though occasionally very successful processes.

Dr. Edis remarked that there was one mode of procedure that had not been alluded to, and that was incision through the vagina

and extraction of the fœtus by means of the forceps. In the case under consideration the head was situated low down in the pelvis in Douglas's pouch, within easy reach, and in any similar case he thought it would be well to bear in mind the possibility of delivering by this means—the advantage being that the general cavity of the peritoneum would not be interfered with and so one important source of danger avoided. The placenta might be left, and should subsequent separation of it ensue, its extraction could be readily accomplished. The vaginal wound should be kept patent, and the cyst injected with some disinfectant. Dr. Greenhalgh had recorded a case where he extracted a dead fœtus, some months after the full period of gestation, in this manner. The cyst contracted gradually and the patient recovered perfectly.

Dr. WILTSHIRE was sorry to hear Dr. Meadows say he would close the abdominal wound after gastrotomy for extra-uterine fœtation. He thought such a procedure open to grave objection, since no means of escape were provided for discharges or decomposing placental or other tissues. He considered Kœberle's plan decidedly preferable. It consisted in leaving an opening at the inferior angle of the wound through which discharges or disintegrated tissues might escape or be removed; or if the closure of the abdominal wound was insisted on, then some means of escape through the roof of the vagina might be resorted to. Or there was Peaslee's plan of treating some ovarian cases which might be found useful, viz. washing out the cavity by means of salt and water, a drachm to a pint. Dr. Wiltshire gave particulars of a case of his own where he had intended operating, but the cyst burst and, after a sharp attack of peritonitis, the patient recovered.

Dr. MEADOWS was very much surprised at the statement made by Dr. Barnes that the practice advocated in the paper had long been the recognised and established rule. If this were so, it was very remarkable that no obstetric writer that he knew of laid down any such rule; and certainly the one Dr. Barnes had quoted as favorable to the practice in question, viz. Dr. Ramsbotham, was absolutely silent on the subject, if indeed he did not actually discountenance it. Dr. Meadows regretted, therefore, that Dr. Barnes had given no reference to authorities where the supposed rule existed; he was glad, however, to find such a general concurrence of opinion as the paper had elicited in favour of the practice recommended, at all events as regards the desirability of performing gastrotomy before the occurrence of rupture, in order to anticipate that, and at the same time to rescue, if possible, the life of the child. He believed, with Dr. Snow Beck, that in the majority of these cases the placenta was attached to the fimbria or some part of the Fallopian tube, but in the case now cited, though this might have been so in part, it

certainly was not altogether, for the great bulk of the placenta had been attached to, and, during the operation was removed from, the interior of the cyst deep down in Douglas's pouch, and quite independent of the Fallopian tube.

DECEMBER 4th, 1872.

John Braxton Hicks, M.D., F.R.S., President, in the Chair.

Present—54 Fellows and 11 Visitors.

Books were presented by Dr. Arthur Farre, Dr. Demarquay, Dr. F. M. Robertson, Dr. W. M. H. Sänger, Dr. Henry Fly Smith, the Royal Medical and Chirurgical Society, the St. Andrew's Medical Graduates' Association, and St. Bartholomew's Hospital.

Dr. Joseph McMonagle (St. John's, New Brunswick) was admitted as a Fellow of the Society.

The following gentlemen were declared admitted:—Dr. Henry Harris, Redruth; Mr. E. M. James, Melbourne; Dr. George Mendenhall, Cincinnati, U.S.; Mr. Wm. Bailey Rankin, Melbourne; and Dr. Joseph Szczygielski, Warsaw.

The following gentlemen were elected Fellows of the Society:—Edward Nicholls Carless, M.B., Devizes; James F. Lovegrove, M.R.C.S., Sevenoaks; Charles Sangster, M.R.C.S., John Williams, M.D., and Rt. A. H. Wood, M.R.C.S., Liverpool.

Dr. Wiltshire exhibited, for Mr. Lawson Tait, a case containing instruments for the application of various medicated tents to the interior of the cervix uteri.

Report on Dr. Protheroe Smith's case of Carcinoma Uteri.

On coming into my hands I find the preparation has been kept for a few weeks in a weak solution of chromic acid, and some portions are not well preserved. It consists of the uterus and its appendages. The weight of the whole is six ounces. Length of uterus, 3½ inches; width at fundus, 3 inches; peritoneal covering everywhere smooth and healthy. *Ovaries* small and shrivelled; on laying them open the only morbid appearance is a small cyst in the stroma of the left, containing a little dark cretaceous matter, apparently the remains of an ovisac. *Fallopian tubes* natural in appearance, open at their fimbriated extremities, but closed for about an inch at their uterine. *Ligaments* free from thickenings or adhesions. On turning the uterus inside out the whole of its internal surface, except the neck, appears to be the seat of disease, the darker spots and appearances being probably owing to some of the remedies employed; surface torn and uneven; in some places there are bulging masses not unlike the post-mortem appearances of cauliflower excrescence. Near the fundus the mucous membrane and the subjacent uterine tissues have been destroyed by disease nearly through to the peritoneal covering; other parts of the uterine walls are abnormally thick; on the posterior aspect of the uterus there are two small subperitoneal nodules, and towards the left side a larger nodule; the diseased surface terminates abruptly at the os internum. After removing portions of the preparation for microscopical examination, it was placed in Goadby's solution.

Microscopical examination.—The bulging masses spoken of appear to be made up of a variety of elements, such as are usually met with in cases of epithelioma, namely, minute granules, oil-globules, epithelial cells, and other cells of an irregular and nondescript character, and a little earthy matter, all contained in a stroma of connective tissue. The thickening of the walls of the uterus and even the small nodules

mentioned, as far as can be made out with the microscope, appear to be due rather to inflammatory infiltration and fibrinous deposit than to any special morbid elements. The state of chronic metritis that the organ had been so long subject to would seem to favour this opinion. Looking at the history in connection with the foregoing examination the case appears to me to be one of rare occurrence, that is, epithelial cancer attacking the lining mucous membrane of the body of the uterus, and destroying portions of the uterine substance without affecting the cervix.

HENRY M. MADGE.

NOTE ON THE MODE OF DEALING WITH THE PLACENTA WHERE GASTROTOMY IS PERFORMED IN ORDER TO REMOVE THE FŒTUS IN EXTRA-UTERINE GESTATION.

By ROBERT BARNES, M.D.

BEFORE resorting to the operation of gastrotomy in cases of extra-uterine gestation it is of grave importance to have settled opinions as to what to do with the placenta. Having studied the subject with some care, I had acquired the conviction that it had become generally recognised as a rule in practice not to attempt the removal of the placenta if it at all adhered. It was therefore with some surprise that I heard Dr. Meadows's description of an operation for gastrotomy to remove a living fœtus, in which he not only removed the placenta, but tried to remove the cyst also. My surprise was increased on hearing, not that he had arrived at the conclusion that the placenta ought not to be removed, for his own case led irresistibly to that conclusion, but that he laid it down as a rule in practice which was new.

In reply to my observations on this point, Dr. Meadows

expressed his surprise at my statement that it was an already recognised rule in practice not to touch the placenta, and that there was no mention of it in Dr. Ramsbotham's works, whose authority I had quoted.

It would appear from this difference of opinion that the propriety of leaving the placenta alone is not yet fully recognised. It is with the desire to remove all doubt upon this point that I trouble the Society with this note.

My statement was based upon the following grounds, some of which I expressed to the Society :

1. A perusal and comparison of the recorded cases of gastrotomy in extra-uterine gestation could not fail to convince the reader that the attempt to remove the placenta had proved disastrous, whilst leaving it alone had been followed by fair success.

2. Most of the recent operators, acting, as it seemed to me, on the conclusion thus drawn, had taken care not to touch the placenta. This was certainly so in the case operated upon by Mr. Adams under Dr. Ramsbotham's advice. I freely accept Dr. Meadows's statement that the rule is not expressed in Ramsbotham's writings. I did not quote from his writings ; I spoke, having been his colleague, from having assisted at the consultation and operation on the case referred to. The operation was performed on Dr. Ramsbotham's diagnosis, on his advice, and under his direction throughout. He emphatically insisted that the placenta should not be touched, and the patient's recovery shows the wisdom of his advice.

3. The case was published by Mr. Adams in the 'Medico-Chirurgical Transactions' for 1860. The following apposite remarks are quoted from this report :—"The only circumstance in connection with the operation requiring particular remark —and I believe the observation refers to almost all cases of gastrotomy for extra-uterine gestation—relates to the placenta. From the few recorded cases of the operation it appears that wherever any rude attempts have been made to extract the placenta the cases have invariably been fatal. Nevertheless it ought to be examined by very gentle traction of the funis,

to see if it is loose and can be removed with facility, otherwise it is better to leave it alone, with the hope that it will be separated and come away in the discharges. Dr. Barnes, in the quarterly report on midwifery in the fifty-second volume of the 'British and Foreign Medico-Chirurgical Review,' quotes a case of extra-uterine gestation operated upon by Dr. Goodbrake, of Clinton, Illinois. . . . . The operation was performed exactly two years and nine months from the end of her full period. The sac was traced to the right iliac fossa, to which, and to a considerable extent of the parietal peritoneum on the right side, it was firmly adherent. There were no adhesions anteriorly, nor to the intestines. A small incision was made into the sac, and a fœtus was found in a good state of preservation. The cord was still attached to a very small placenta, of a cartilaginous character, seated low down in the pelvis, and immediately over the space where the sac was adherent to the broad ligament. *The cord and as much of the placenta and sac as could be got away without lacerating the peritoneum were removed,* the parts carefully sponged, and the incision brought together by the interrupted suture. The patient died on the fifth day from prostration. I cannot," concludes Mr. Adams, "conceive this violent procedure to be justifiable."

4. In 1860, subsequently to the occurrence of the case of Ramsbotham and Adams, Mr. Hutchinson collected all the cases accessible to him, and published them in an exhaustive series of reports in the 'Medical Times and Gazette.' He discusses the question of operating whilst the fœtus is living, describing this as the primary operation, and concludes with Campbell in favour of deferring the operation until some months after the child's death. As to the placenta, he concludes as follows:—"The lesson of facts is very strongly in favour of the precept laid down by Dr. Ramsbotham in Mr. Adams's recent case—not to remove the placenta unless the latter structure be found quite loose."

Again, this accomplished surgeon, in his article "Surgical Measures in Extra-uterine Pregnancy," in the first edition of Holmes's System of Surgery,' published in 1864, says,

Unless the placenta be found detached, it ought not to be removed, but left to come away afterwards. The attempts to detach it might very possibly tear through the cyst, and open into the peritoneal cavity."

Hohl, in his 'Lehrbuch der Geburtshülfe,' second edition, 1862, a work of high authority in Germany, says, with reference to the primary operation, that "gastrotomy is only to be performed when the fœtus is mature, when the heart-beat declares it to be in vigorous life, and when the mother has made up her mind for the operation, and her condition during pregnancy and at the time justifies the hope of recovery." With reference to the placenta, he says, "Most obstetric practitioners teach in this case to separate and remove the parts which can be detached. We are not of this opinion. As to the consequences, it is indifferent whether only a part or the whole placenta remain behind. When the ovum is surrounded by a firm sac one would do well to leave it untouched, when it cannot be easily removed because the surrounding parts are intimately adhering to it.

In a recent excellent monograph (1872) on the subject, Dr. Keller, first relating two cases operated upon by Koeberlé, of Strasbourg, in both of which this eminent surgeon designedly left the placenta *in sitû*, and both of which ended in recovery, thus expresses himself on the question of how to deal with the placenta:—"In gastrotomy for extra-uterine gestation none of the favorable conditions present in Cæsarian section (which dictate removal of placenta) are present. The placenta is almost always much spread out, and sometimes very adherent. Moreover, if the extraction of the placenta were possible, would it be prudent to effect it? The placental insertion is not endowed with contractility, as in uterine gestation; the maternal sinuses will remain gaping, and hæmorrhage will be great. This objection (to gastrotomy whilst the child is living) loses some of its force if the attachments of the placenta are religiously respected, as the greater number of operators have understood the necessity for doing. (Cette objection tombe en partie si l'on a soin de religieusement respecter les attaches du placenta, comme du

reste l'ont compris la plupart des opérateurs.) The elimination is thus effected slowly, and the maternal vessels have time to contract and to become obliterated." From this passage it will be seen that Keller, who reproduces Kœberlé's views on the subject, argues for the primary operation, and shows that, in this operation, as others have done in the case of the secondary operation, the placenta should not be touched. Indeed, if it be unwise to meddle with the placenta in cases where the child has long been dead, and where consequently all active vascularity has ceased, *à fortiori* is it unwise to meddle with it when the vascular communication is at the height of activity.

I trust the preceding quotations are sufficient to show that, at least since 1860, the date of Ramsbotham's and Adams's case, there has been a general consent as to the rule not to touch the placenta when gastrotomy is performed to remove a fœtus, dead or alive. I admit that my own decided opinion upon the subject is greatly based upon this case, and my respect for Ramsbotham's judgment, which I knew was based upon experience. It could not be expected that Dr. Meadows should be so deeply impressed by this experience as I am. It is, however, gratifying to find that his own experience has led him to the same conclusion; and he will not, perhaps, regret to find that he is amply supported by the experience and judgment of many eminent men, although they have anticipated him in his conclusion.

Dr. Meadows was very glad that Dr. Barnes had brought this subject again under the notice of the Society in the note just read, and he wished to thank him for the courteous way in which he had referred to his (Dr. Meadows's) paper, and also for kindly allowing him to read the note before bringing it to the Society. Dr. Meadows's sole object in introducing this subject would, he felt quite sure, now be attained by the discussion which his paper had elicited, and by the authoritative expression of opinion that the correct practice in these cases is to leave the placenta alone, and to make no attempt whatever to remove it. He was convinced that the great danger hitherto attending the operation of gastrotomy in these cases was due to the attempt

made to remove the placenta; if this were once recognised as bad and unnecessary practice, then he was sure that gastrotomy would become the rule in all cases of extra-uterine pregnancy where a living and viable child existed, and the lives of many children would thus be saved which now are allowed to be lost. It was, after all, a matter of very small importance who first advocated such practice, or who attempted its revival after it had become obsolete; the highest ambition of us all is the grand object of saving life, and without that this Society would have no *raison d'être*. In view of such a thought he cared very little whether or no the practice inculcated was or was not laid down in any of our obstetric works, especially as he had no doubt that after this discussion it would be expressly formulated. To this end Dr. Barnes's note was a most valuable contribution, for it showed conclusively that the practice advocated was sound and true. Dr. Meadows felt constrained, however, in justice to himself, to repeat his former statement that no obstetric writer that he knew of had expressly laid down the rule now sought to be established in any work on midwifery. Dr. Barnes's note was, he thought, conclusive as to the practice in cases where the fœtus was dead, but in nearly all of them the operation was not only not attempted, but was intentionally deferred till after the death of the child, and this appeared to be the rule that was generally adopted. In the few cases where gastrotomy was performed in order to save the child attempts had generally been made to remove the placenta, and this had led to such fearful hæmorrhage that the practice had been generally abandoned. It was in order to obviate this that he (Dr. Meadows) had brought forward his paper. With reference to the note just read by Dr. Barnes, there occurred two important errors which he would notice. In the first place, he (Dr. Meadows) had not operated in the case which he had brought forward; the operation was performed in his absence by his colleague, Mr. Scott; secondly, Dr. Barnes appeared to think that Mr. Hutchinson had, in his report and in his article in 'Holmes's Surgery,' considered the whole subject of the treatment of the placenta in all cases where gastrotomy was performed for extra-uterine fœtation, whether the child was living or dead. This, however, is not the case. His report is "On the Treatment of Cases of Extra-Uterine Fœtation extending beyond the full period of Pregnancy," and he expressly limits it to those cases where the fœtus had died. The terms "primary" and "secondary" he thus explains:—"In all the cases given in the first table suppuration had occurred in the cyst, and the operation consisted in enlarging the opening already made by ulceration and then extracting the fœtus. Operations of this class may suitably be termed 'secondary' abdominal section, the term 'primary' being

reserved for those of the class contained in the second table, in which no abscess had yet opened. No cases have been included in either table in which the fœtus had not advanced to nearly its full time before death, and in a large majority the natural period had been completed." All his remarks subsequently show that he only contemplated the performance of gastrotomy in cases where the fœtus was already dead, and his report was limited to them; he expressly states, indeed, that "whoever will carefully examine the cases will come to the conclusion that the longer the interval allowed to elapse between the death of the fœtus and the operation the less is the risk attending the latter." It was important to note this as it had a bearing upon the point in dispute between Dr. Barnes and himself, and though Dr. Meadows entirely concurred in Dr. Barnes's opinion that if it be sound practice to leave the placenta in cases where the fœtus is dead, *à fortiori* is it where the fœtus is living; still, the fact remained that, so far as he knew, this practice had nowhere been explicitly advocated. He had no doubt, however, that when this discussion became widely known it would soon be added to the precepts of our obstetric text-books.

ON THE SYSTEMATIC EXAMINATION OF THE ABDOMEN, WITH VIEW TO RECTIFYING MALPOSITIONS OF THE FŒTUS IN CASES OF LABOUR.

By Arthur W. Edis,

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In bringing this subject prominently before the attention of the Society, it is not with the idea of advancing any novel mode of procedure, but of inculcating more earnestly the universal adoption of this simple expedient.

Most of the recognised works on midwifery in France and Germany describe fully the process, but few of our English authors lay sufficient stress upon the importance of the subject.

The more extended application of the method in British midwifery would, I feel sure, tend materially to diminish the fœtal as well as maternal mortality, and might well be

advocated by our systematic authors and clinical teachers, until every student shall learn to consider it as his duty to examine carefully the position of the fœtus in utero on first visiting his patient, and, if need be, rectify any malposition that may occur.

In the thirty-second report of the Registrar-General for the year 1869, over 2000 mothers are stated to have died from accidents of childbirth, exclusive of more than 2000 others who succumbed to puerperal fever and other complications. Churchill estimates that the superior extremities present once in every 243 cases; that about one half the children and about 11 per cent. of the mothers are lost.

With these facts before us, surely any plan is worthy of consideration that will tend to diminish this sad mortality, more especially when that suggested is a simple operation which involves no risk to either mother or child, and which any one qualified to attend the lying-in chamber may perform.

Natural labour may terminate favorably in the midst of inactive ignorance; unnatural requires action guided by an enlightened judgment; and the sooner the latter is brought to bear upon the former the less will be the risk and suffering incurred by both mother and child.

The advantage of detecting malpositions in the early stage of labour is considerable, for whilst the membranes are still intact very little effort is required in rectifying the presentation, and little or no danger is incurred by the mother or fœtus, for it is not a question of passing a hand into the uterus and bringing down a foot, necessitating the administration of chloroform and subjecting the patient to the attending risks of shock to the system, or even rupture of the uterus, but the process is so simple that an intelligent midwife could perform it; it is merely a question of substituting the head or normal presentation for the abnormal one by external manipulation alone, thereby lessening considerably the risks to both mother and child.

Wright, in his prize essay 'On Difficult Labours and their Treatment,' written in 1854, states that—

"1. At an early period of labour, and especially if called before the membranes are ruptured, a shoulder may be converted into a vertex presentation more easily than turning by the feet is ordinarily performed.

"2. That although the membranes may have been long ruptured, turning by the head can be accomplished with great facility.

"3. That delivery by cephalic version may be speedily effected after repeated and ineffectual efforts have been made to turn by the feet.

"4. That cephalic version should receive a prominent, nay leading place, as a means of expediting delivery in shoulder presentations.

"He advises that turning by the head should be selected in all cases where difficulty arises from malposition merely; or in convulsions, hæmorrhage, or prolapse of the funis, if the uterus should be engaged in vigorous expulsive efforts; turning by the feet being preferred in cases of inefficient uterine action, or in exhaustion from long continuance of labour, in hæmorrhage, or in any case in which there may be a demand for speedy delivery."

Yet although this was written eighteen years ago, the subject has not attracted anything like the attention its importance demands.

Dr. Barnes, in his invaluable work on obstetric operations, states that, "a head presentation is the type of natural labour, it follows that to obtain a head presentation is the great end to be contemplated by art. No one will dispute that the chance of a child's life is far better if birth takes place by the head than if by the breech or feet. Yet delivery by the feet is almost invariably practised when turning or the substitution of a favorable for an unfavorable presentation has to be accomplished. Why is this? The answer is not entirely satisfactory. It rests chiefly upon the undoubted fact that *in the great majority of instances at the time when a malpresentation comes before us, demanding skilled assistance, turning by the feet is the only mode of turning which is practicable.*"

Dr. Braxton Hicks, in his work on 'Combined External and Internal Version,' 1864, states—

"Again, to perform complete version entirely from the outside requires considerable opportunities of practice, more than fall ordinarily to the fate of practitioners; and even in the most skilful and practised hands it has much of uncertainty; and what is more, for practical purposes it will fail us when we most stand in need of it, namely, in actual labour, for few medical men have the opportunity, in private or outdoor practice, of carefully examining the condition of the presentation before labour has commenced; and even did they possess every facility, it would be very impracticable, and I may say to a certain extent unnecessary, for it is evident to any one who has taken the trouble to examine the position of the child before birth that it is frequently altering its position in utero, more commonly oscillating between the transverse and cephalic, and that it is not until the early pains set in that its presentation is finally fixed."

Now, it is to meet the difficulty Dr. Barnes speaks of, namely, "at the time when a malposition comes before us, demanding skilled assistance, turning by the feet is the only mode of turning which is practicable" at the same time, with all due deference and respect for our worthy President, to dissent from his statement regarding the "difficulty and uncertainty" of external manipulation alone, that I venture to inculcate the universal adoption of systematic examination of the abdomen in all cases of labour, believing that many lives may thus be spared as well as much anxiety saved to the practitioner; and although one cannot expect that all will attain proficiency on first commencing, still, like everything else, it only requires learning and is by no means so difficult as might be imagined. I have taught several intelligent pupils the method, and I have already had proofs of the advantage of so doing.

The subject has been forced more especially upon my attention of late owing to being called in consultation in cases where the arm was prolapsed and the membranes ruptured, where the patient herself had noticed that "she

had carried the child differently to before," but the attendant had failed to utilise the hint thus given until it was too late.

The question will naturally be asked, are we to examine the abdomen of every parturient woman? I answer unhesitatingly, yes. The advantage of so doing is great, for we have emphatically everything to gain and nothing to lose; should the position of the fœtus be normal no harm whatever is done, and should it not be so we are in a position to rectify it with the minimum amount of risk and trouble, for with ordinary skill every one can accomplish it, and the sooner the method becomes general the better for both patient and attendant.

In ordinary cases the best position to ascertain the situation of the fœtus is for the patient to lie on her back, with the shoulders raised and the knees drawn up. Supposing we find that the head occupies the left iliac region, dorso-anterior, the right shoulder presenting, by turning the patient on her left side and gently pressing up the breech in the right side, with some little counter-pressure upon the fœtal head downwards and inwards, by external manipulation alone, rectification of the abnormal position is readily accomplished, and if no pelvic deformity exists and there be no great excess of liquor amnii the fœtus will probably retain its normal position and labour advance in the usual way. Should there be any tendency for the malpresentation to recur, the opportunity must be taken to rectify it when the os is dilated; rupture the membranes and retain the head at the brim until fixed by firm contractions of the uterus.

The principle, being understood, it remains with the practitioner to modify the position of the patient and direction of the pressure according to the exigencies of the case. Efforts at restitution should only be made between the pains in those cases where labour has already commenced.

Difficulties may occasionally arise from the large size of the fœtus, deformity of the pelvis, small amount of liquor amnii, ascites, abdominal tumours, &c.

It is a fortunate coincidence, or consequence, more properly speaking, that transverse presentations occur more frequently in multipara than in primipara, as it is hardly necessary to state the operation is more readily performed in the former than in the latter. An extension of this principle to cases of placenta prævia, where ordinarily we have "to turn and deliver," lessens considerably the risk to both mother and child.

Again, in those cases of slight pelvic deformity where we may succeed in delivering by bringing the breech down in place of the head, the risk is also considerably diminished, for it is as easy to bring down the one as the other when the membranes are still intact, although in normal conditions of the pelvis, and where no special reasons exist to the contrary, cephalic version is the one to be employed.

I cannot, in conclusion, do better than quote from W. L. Richardson's pamphlet, who says—

"To sum up briefly the advantages to be derived from the application of external manipulation to obstetric practice, we find—

"1st. That the *diagnosis* of the fœtal position can be made out before labour begins, and while the membranes are unruptured.

"2nd. That the examination, thus conducted, can be made with less discomfort to the patient and less trouble to the physician than attends a vaginal examination.

"That as regards the *treatment* of obstetric cases there are many very decided advantages to be derived from the use of external manipulation.

"1st. That version can be performed before labour begins, thus enabling us to convert with the greatest ease to ourselves and safely to our patient an unnatural into a natural presentation.

"2nd. That version can also be performed during labour with much less danger to both mother and child than is possible by any other method.

"3rd. That by this treatment cephalic version can be performed as easily as either podalic or pelvic.

"4th. That in cases of placenta prævia we can interfere at a very early stage of the labour, and adopt a form of treatment which offers far better chances to both mother and child than any other.

"5th. In cases of prolapsed funis, by adopting this method, we can terminate a case of labour much earlier than if we were obliged to wait until the os should dilate sufficiently for us to introduce our hand.

"6th. In cases of accidental hæmorrhage, or convulsions, we are enabled to interfere earlier, and terminate the labour more rapidly than has hitherto been thought possible.

To those who may care to study the subject more in detail I append a list of those who have written on the subject—

'Consolation for Pregnant Women.' Jacob Rueff, of Zurich, 1554.

Wigand, J. H., 'Turning by External Manipulation.' Hamburg, 1807.

D'Outrepont, J., 'Spontaneous Evolution and Cephalic Version.' Wurzburg, 1817.

Wright, M. B., Prize Essay on 'Difficult Labours and their Treatment.' Cincinnatti, 1854.

Smith, Dr. Tyler, "Abolition of Craniotomy," 'Obst. Trans.,' vol. i, p. 43.

Brisch, 'Abhandlungen,' &c. 1826.

Schmidt's 'Jahrbuch,' 1857, Band xcv, p. 66.

Braxton Hicks, Dr., "On Combined External and Internal Version," 'Obst. Trans.,' vol. v, p. 219; 'Lancet,' July 14th and 21st, 1860; February 9th, 1861, and separate Treatise, 1864.

'Allgen. Wien. Med. Ztg.,' December, 1863, No. 58.

C. Hecker, 'Klinik der Geburtsk,' Band ii, p. 141.

'Monattschr. f. Geburtsk,' Band xxvii, p. 219.

Hohl, 'Lehrb. de. Geburtsk,' 2 Aufl. Leipsic, 1862, p. 784.

Cazeaux, 'Theoretical and Practical Midwifery,' p. 789. 1866.

Whittaker, Jas. J., 'American Practitioner,' vol. i, 1870.

Richardson, W. L. 'External Manipulation in Obstetric Practice. Boston, 1871.

Barnes, Robert, Dr., 'Lectures on Obstetric Operations,' 1871, p. 90.

Dr. Madge said that some French authors have stated it to be possible to make out the position of the fœtus in utero by auscultation, and he thought that it should at least be employed as an important aid in such an examination. The position could by this means be made out with tolerable accuracy; but the child's frequent movements and changes of position made the knowledge of but little practical value.

Dr. Playfair said that his attention had long been directed to the ease with which the position of the fœtus could be made out by abdominal palpation combined with auscultation. In a paper read before the Society last year "On Irritable Bladder in the latter months of Pregnancy," he had shown how it could be turned to practical account, as by altering the abnormal position of the fœtus this distressing symptom could often be removed. Dr. Edis did not describe at length how the position of the fœtus could best be made out. The method he (Dr. Playfair) used and taught his class was first to ascertain the direction in which the long diameter of the uterine tumour lay. If this was from above downwards the presentation must be either the head or the breech. In the former case the fœtal heart would be heard beating *below* the umbilicus, in the latter *above* it. When the long axis of the uterus did not correspond to the long axis of the abdomen, but lay more or less obliquely across it, the presentation was transverse. A hard prominence would be found at either of its extremities, corresponding to the head and breech. The fœtal heart could be heard loudest near the extremity at which the head lay. These facts being made out, the position of the child could be altered at pleasure, and with great ease. He differed from Dr. Edis, however, in thinking that any examination need be made for the purpose of detecting the exact position of the fœtus until labour had actually commenced. The position in which the fœtus lies is constantly altering, and it would be found practically useless to change it artificially until labour had begun, as most probably it would soon find its way back to its former position. In several of his cases in which he had detected transverse position some time before delivery, the head presented naturally when labour came on.

The PRESIDENT remarked that he would be the last to throw any cold water on the use of the external hand in midwifery. All his teachings and writings had been directed to the inculcation of its use, and yet it was from a practical knowledge of the difficulties of turning wholly from the exterior that he had made the remarks he had done in his work on 'Combined External and Internal Version.' It was a difficult mode even for those skilled in its use. He thought the cases in which the rectification was needed were few, much fewer than the advocates of rectifications before labour thought. The proportion of cases in which their plans were carried out were far in excess over the occurrence of transverse presentations in actual labour. The uterus by the gentle early contractions rectified most of the oblique positions of the fœtus. At the same time he fully coincided with the opinion that we should at all times fully acquaint ourselves with the conditions of the uterus and its contents, so that when labour set in, and as soon as the os uteri admitted a finger or two, we should be prepared, if an error of presentation existed, to rectify it at once by combined external and internal version, and this, he thought, would be in nearly every case sufficient to meet the exigiencies of labours, and as much as was possible in ordinary private practice.

Dr. EDIS, in reply to Dr. Murray's remark that Dr. Braun, of Vienna, employed the process not so much with the view of remedying malpositions as of being ready at the earliest moment to give assistance, thought that this scarcely expressed it. The process was employed distinctly to obviate errors of position. As regards Dr. Madge's remark about auscultation not having been mentioned, Dr. Edis replied that he had purposely omitted it from his paper, though he always employed it in his practice, so as not to divert attention from the main object of the paper. Dr. Playfair had misunderstood the time at which Dr. Edis proposed resorting to examination; he only intended employing it during labour, and had never found any objection urged by the patient. It was true, complete version of the fœtus by external manipulation alone was somewhat difficult, but as cephalic version was the method insisted on, this would seldom be requisite. He quite agreed with Dr. Phillips that in most, so-called, transverse presentations, the head rested on one or other iliac fossa, and the axis of the uterus was oblique—all the more reason why cephalic version should be employed by external manipulation alone before the membranes had ruptured.

NOTE ON THE TREATMENT OF SUPPURATING OVARIAN CYSTS BY DRAINAGE.

By J. J. Phillips, M.D.

So much success has of late followed the complete removal of suppurating ovarian cysts that the operation of ovariotomy will probably in future be more frequently resorted to in such cases. Exceptional instances will, however, occur in which the removal of the tumour cannot be effected, or in which the attempt to extirpate it may be considered undesirable. Under such circumstances the practice of freely laying open the cyst, and stitching its walls to the margins of the abdominal wound, or the treatment by the drainage tube, will probably be considered to afford the best chances of success. In the case to be mentioned the drainage tube was used, the cavity of the cyst being daily washed out; and this note is recorded to illustrate one source of danger accompanying that plan of treatment. The point may indeed be familiar to the more experienced members of the Society, but I have seen no reference to it in any treatise on the subject, and it may therefore be worthy of brief notice.

Harriet W—, æt. 30, was admitted into Guy's Hospital, under my care, in the summer of the present year. She was the subject of an ovarian tumour, and had been twice tapped at a provincial hospital. The abdomen was tensely distended, prominent and globular in form, with distinct fluid vibration from side to side. A vaginal examination revealed the posterior part of the pelvis to be occupied by a tense elastic swelling receiving no impulse from the abdominal tumour. The os uteri was high up in front, the uterus normal in length. The patient's general condition was unfavorable. She was a good deal wasted, perspired much at night, face pinched, eyes sunk, tongue raw. The temperature on the morning after admission was 101° Fahr., and on the few

following mornings it varied from 99·8° to 100·8°, while the evening temperature was about 102°, on one occasion 102·7°. The pulse beat 120 per minute, and the respirations averaged 22 per minute. She complained of no pain, and there was no tenderness over the abdomen. It seemed probable that there was suppuration of the contents of the cyst; and on tapping it thirteen pints of pus were withdrawn. A small solid mass was found on the right side, and the evacuation of the abdominal cyst had no effect on that contained in the pelvis. My colleague Dr. Hicks kindly saw the case, and we decided not to recommend excision, but to introduce a drainage tube and wash out the cyst daily with a weak solution of iodine. The cyst in the pelvis might, it seemed, be treated subsequently by vaginal drainage. The improvement in the patient's condition became very marked. The temperature on the evening of tapping fell to 100·7°, on the third evening it was normal, and continued so, except for a few days when there was a little suppuration about the wound, until the supervention of the unfavorable symptoms six weeks after paracentesis. A note made three weeks after the operation stated that the patient continued to improve, gaining flesh, and taking food well. The cyst was evidently contracting, pushing the tube gradually out, and not containing more than five or six ounces of the iodine solution. One evening three weeks later she became very feverish, face flushed, pulse 140 per minute. This was followed by abdominal pain, a temperature varying from 103° to 105°, all the signs of acute peritonitis, and death in six days. At the post-mortem examination the left ovary was found to form a single cyst, the size of a cocoanut, which lay in the pelvis behind the uterus; this contained a brown, rather viscid fluid. The abdominal tumour was formed by the right ovary, and was composed chiefly of the cyst which had been injected during life. It was now so much reduced in size that it would hardly have held a cricket-ball. Its lining membrane was slightly discoloured, and covered here and there with specks of cheesy matter; its walls were everywhere perfect, and there was no indication whatever that it

had given rise to the peritonitis. The explanation of this was, however, readily found. The chief adhesions were on the right side, and the small mass of compound cysts felt there during life contained gelatinous material, while their walls had undergone calcareous degeneration. There was, however, one small cyst the contents of which were purulent; this was firmly adherent to the mesentery, and its wall around the adhesion was thin and shreddy, and had an opening in it, through which pus had escaped into the peritoneal cavity, and could then be made to exude on pressure. It seemed evident that the contraction of the chief cyst had caused such dragging on the adhesion between this small suppurating cyst and the mesentery as to cause a gradual wasting of the cyst wall and its subsequent rupture, an accident probably also favoured by the contents being purulent. The other organs of the body were healthy, except that the right lung, below its apex, contained an old vomica filled with cheesy stuff, and that there were some calcified scattered tubercles in the summit of the left lung.

The case brings to my recollection another case of suppurating ovarian cyst treated by drainage, and which ultimately did well. The patient was seized, several weeks after tapping, and when the cyst had contracted to a small size, with rather severe peritonitis of several days' duration, the cause of which appeared obscure. I think it not improbable that rupture of a small secondary cyst occurred, produced perhaps in a similar manner to that in the case now recorded; but that its contents were not of such a character as to set up so severe a form of peritonitis as to prove fatal.

I may add that it does not appear probable that the untoward termination in the case just reported could have been averted if the case had been treated from the first by a free incision; for had any attempt been made to break down the compound cysts the small suppurating adherent cyst would not have been reached owing to the dense calcareous mass which intervened between it and the cavity of the main cyst.

Dr. Tilt related that, in a case of very voluminous monolocular cyst, he was told by Recamier to establish three issues at the pit of the stomach with potassa fusa. As the abdominal walls were thin, one of these issues perforated the cyst, and one morning it was found that a glutinous fluid had been oozing out of the cyst, saturating three mattresses, and that it had largely collected on the floor. When the contents of the cyst became offensive Dr. Tilt injected tepid water into the cyst every day, without any accident, except once, when pain and an alarming state of collapse made him fear for the patient's life. The gradual retraction of the cyst was shown by the diminution in the quantity of water required to fill the cyst. The patient made a good recovery, and fairly enjoyed life, but she had to inject a few ounces of water every morning. She died of intestinal obstruction some eight years after the accidental rupture of the cyst, and Dr. Tilt believed that the remnant of the tumour somehow caused the obstruction. In 1847 Dr. Tilt proposed that we should attempt to cure monolocular ovarian cysts by doing intentionally what occurred accidentally in this case; but the magnificent results of ovariotomy bar the thought of any other plan for the radical treatment of ovarian chronic tumours.

Dr. Snow Beck inquired upon what evidence the fluid withdrawn from these cysts was said to be "pus." Not unfrequently it had been stated that pus was discharged from ovarian cysts, or that suppurating cysts had burst, &c., but he much doubted the correctness of these statements. The fluid contained in ovarian cysts was often of a thin pea-soup appearance, and contained multitudes of cells, which had great resemblance to the pus-cells, yet were apparently distinct from it. The cells from the ovarian cysts had, like the pus-cells, a thin cell wall, and contained two or three nuclei, but they differed from the pus cell in being of different sizes, being somewhat irregular in form, and having many bright molecules adhering to some part of the cell wall. At different times he had been at issue with excellent observers upon this point, and thought it important to decide, if it could be done, whether the cells in the fluid were the usual and ordinary formations of these cysts, or whether they were really pus-cells, in which latter case they might be considered as the result of some inflammatory action induced in the ovarian cyst.

Dr. Bantock did not gather whether Dr. Phillips had, on post-mortem examination, come to the conclusion that the tumours could not have been removed by operation at the time the treatment was begun. Some years ago he saw a patient die from exhaustion, the result of suppuration of an ovarian cyst, which opened near the umbilicus, in which, after death, the cyst was found adherent as a partly collapsed sac to the extent of

about three to four inches across, the remainder of the sac being quite free from adhesions, and presenting an admirable pedicle. More recently he had seen a patient die from the same cause, in which case also the tumour could have been removed very easily during life. From what he had seen of suppurating ovarian cysts, he believed it would be much safer to perform ovariotomy under such circumstances than to attempt drainage, seeing that it was impossible to ascertain the exact relations and nature of the tumour without opening the abdomen, while the results of operation were eminently satisfactory. In the treatment by drainage one necessarily works in the dark.

Dr. Phillips, in reply to Dr. Bantock, said that the post-mortem appearances showed that extirpation would, in the case reported, have been attended with great difficulty. He was far from depreciating ovariotomy in such cases, and his case pointed out an additional source of danger in the treatment by drainage. In answer to Dr. Snow Beck, he did not remember that a microscopical examination of the fluid had been made. The fluid, however, whether pus or not, discharged from the small ruptured cyst, was irritating enough to set up fatal peritonitis.

ON THE CAUSATION OF ACQUIRED FLEXIONS OF THE UTERUS, AND THEIR PATHOLOGY.

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Dr. Graily Hewitt says in his new work, page 207, "I can draw no absolute conclusion from what I have observed as to the effects of particular accidents or special antecedents producing a flexion of the uterus backwards instead of forwards; for I have known the same kind of accident produce different results in this respect."

It is the object of this paper to clear up this point; to explain why in two cases, the same causes and conditions apparently existing, an anteflexion is found in the one, a retroflexion in the other.

I was led to consider this subject from being so frequently asked to explain it by students and other gentlemen attending my out-patient room at the Soho Hospital; and having now for the last seven or eight months given the explanation contained in this paper, and it having been considered reasonable by all to whom I have given it, I have ventured to bring it before this Society for still further discussion and criticism.

It will be well to introduce the subject by noticing very briefly the anatomical position of the uterus, its ligaments, and its position in the pelvis.

The uterus is situated in health high up in the pelvis, the fundus being slightly above a line drawn from the promontory of the sacrum to the top of the pelvis, and its axis being at right angles to the plane of the brim of the pelvis. It is supported by the vagina and by its ligaments, and is maintained in its position centrally in the pelvis by its attachment anteriorly to the base of the bladder, and posteriorly by that portion of the peritoneum which forms the base of Douglas's pouch, and which passes from the uterus behind to the rectum and sacrum beyond—the utero-sacral ligament.

These join the uterus at the upper part of the cervix, at that part corresponding very nearly to the situation of the internal os. The fundus uteri and the cervix are, compared to this part, freely movable backwards and forwards, less so from side to side, as the broad ligaments prevent lateral motion of the fundus to any great extent. The fundus being thus free and the uterus being a more or less pliable organ, the fundus may be, under various conditions, more or less altered in its position; that is, it may become more or less verted or flexed, but the healthy uterus possesses sufficient rigidity or tone to recover its normal position directly the conditions causing the flexion or version are removed.

The above is corroborated by the following, taken from a lecture given by Graily Hewitt at University College Hospital. "The axis of suspension of the uterus is represented by a horizontal line passing through the uterus from side to side, about the situation of the internal os uteri; this leaves

half the uterus above the point, half below it. The lower half is effectually fixed, the upper half is very ineffectually fixed except in reference to lateral motion, which is not allowed except to a slight degree." But besides this antero-posterior and lateral movement of the fundus, there is another, the rising and falling of the whole uterus in the pelvis; which is very important, and in which, I think, lies the whole explanation as to the direction which the fundus, in any case of flexion, may take. It is a well-recognised fact that all the solid organs in the body vary in position somewhat, according to the position of the patient; thus the liver occupies a somewhat lower position when a person is standing than when lying down. So the uterus; it falls slightly from the same cause, and may do so to a considerable extent even in health. As a proof of this, if necessary, we may refer to the ease with which on examination the uterus may be pushed up with the finger, or drawn down by a hook when necessary for operation. Again, the patient herself can by deep breathing considerably alter the position of the uterus in this respect. This point I do not suppose any one will contradict, but the following one on which I lay great stress may be questioned, and I wish to call especial attention to it. It is this, that when the uterus so alters its position by such an ascent or descent in the pelvis, it alters also the direction of its axis; so that in whatever place in the pelvis the uterus may be situated, its axis is at right angles to that plane, and by looking at these three rough drawings which I have made you will, I think, not only see what I mean, but see also and at once how much the direction the fundus in a flexion takes depends on the situation or height of the uterus in the pelvis at the time that the flexion is produced.

What first directed my attention to this alteration in the direction of the axis of the uterus was the direction the uterine sound took in cases of prolapsus, when the uterus was not much enlarged and only just extruded from the vulva. It invariably went backwards, in a direction quite opposite to the normal. Then I noticed in cases where the

uterus felt low in the pelvis and yet in which no flexion nor version existed (at least when the patients were lying down), that the sound went in perfectly straight, towards the promontory of the sacrum. Thus I noted that when the uterus was situated low down, at the outlet of the pelvis, when in the middle plane, and when in its normal position, its axis was regularly altered, and in fact agreed entirely with the axis of the pelvis; and thus I first clearly (as I think) saw why the same causes might produce such opposite conditions as anteflexion and retroflexion.

And when we think of the uterus in its relation to the pelvis, and of its normal up and down movements with respiration and ordinary exertion, we can see, I think, what trouble it would give were it to sink and maintain, when it had reached the middle plane of the pelvis, the same direction as when high up. It would in such a case lie directly across the pelvis, pressing on the rectum behind and the bladder in front; it would, in fact, be anteverted, which all allow to be an abnormal position.

The reason, then, why in different cases the same cause produces sometimes anteflexion and sometimes retroflexion is, according to these views, simply this:—That when an anteflexion is produced the uterus is, at the time that the cause comes into action, situated high up in the pelvis, occupying its normal position, the axis being forwards, as in No. 1; so that any force striking it from above would impinge on the *posterior* and upper surface of the fundus, and so force it forward and produce anteflexion; that when a retroflexion is produced the uterus has sunk more or less deeply in the pelvis, with the axis directed more or less backwards, as in No. 3; and in this case any force striking it from above would impinge on the *anterior* and upper surface of the fundus, and so force it backwards and produce retroflexion.

To prove the truth of these views I purpose, first very shortly to run over the causes of flexions generally, and then to bring forward cases to exemplify the facts stated; and these I do not take from my own out-patient room, but

from Graily Hewitt's work, as those quoted by him without regard to these views support them just as well as any cases that I might have picked out from my own patients.

Flexions generally, then, according to Graily Hewitt, are predisposed to by the following causes :

1. An unhealthy state of the body generally.
2. A previous pregnancy.

In the first the tissues of the body imperfectly or badly nourished are relaxed and wanting in tonicity. The circulation in the blood-vessels is retarded under these circumstances ; it is sluggish and imperfect, and the tissue changes take place with greater slowness than under ordinary circumstances and in a state of health. The effect of this state of things upon the uterus is most marked ; it increases in size, its circulation becomes slow, and as a necessary mechanical result of this there occurs a diminution in the rigidity or tonicity of the uterus itself, which is one of the most important agents in preserving the uterus intact ; in other words, the uterus becomes pliable in an unusual degree. This is a state of things which constitutes a strong predisposition to changes of shape in the uterus.

The other predisposing cause is pregnancy. After labour involution in untoward circumstances goes on in a very inactive manner, leaving the uterus larger for some considerable time than it should be, and also of necessity more pliable. The increased size affects not so much the cervix as the body of the uterus, which, as already stated, is from its want of connection more predisposed to a change of position.

Now, the truth of these remarks cannot be controverted. But besides the uterus being so affected, we must remember that the whole body is affected by these conditions. All the pelvic organs as well as the uterus get into a relaxed, atonic condition ; the vagina and the ligaments of the uterus are relaxed, and this favours descent of the uterus, which, as this paper is intended to prove, most strongly predisposes to retroflexion. The muscular coats of the bowels lose tone,

constipation results, and more or less congestion of the hæmorrhoidal vessels exists.

Then as to pregnancy. The increased size and weight of the subinvoluted uterus, existing as it does with loss of tone of the vagina and of the uterine ligaments, tend to cause, more or less, descent of the uterus also ; and, as it descends, its axis alters, and a tendency to retroflexion exists.

Again, with regard to exciting causes, Graily Hewitt says, "It may be simply an exaggeration of the predisposing ones, thus pregnancy in a feeble woman may give rise to it ; or it is produced by strains, falls, jolts, remaining in a constrained position for any length of time, especially when associated with tight clothing around the waist." But let us divide these exciting causes into those producing flexions suddenly (traumatic flexions, Meadows), and those producing them gradually, and then consider their pathology.

1. The traumatic causes are those accidents causing a sudden jolt (as strains or sudden muscular efforts) to the body, especially those bringing into violent action the abdominal muscles, such as the violent straining sometimes necessary to relieve the bowels.

These may produce flexions in people in comparatively good health ; therefore they are much more likely to do so in those who are predisposed to them.

2. The exciting causes bringing on flexions gradually are, constrained positions mantained for a long time, such as the sitting position in needle and sewing-machine work ; or positions not constrained, such as standing all day long, day after day, or any kind of work having a tendency to cause pressure downwards into the pelvis. Continued constipation may be mentioned as a cause ; but for this to have any effect it is necessary that the patient should be predisposed to flexions.

Now let us take three cases of traumatic flexion where, in Case 1, an anteflexion has been produced in a girl previously healthy ; Case 2, where a retroflexion has been produced after confinement by the slight jolting of a feeble patient ; Case 3, where a retroflexion has been produced in a virgin

predisposed to flexions by some of the conditions enumerated above. And let me again, before relating these cases, repeat that the explanation of these various flexions being produced by the same cause lies in the fact, that the uterus may under different circumstances occupy a very different position in the pelvis; that its height in the pelvis, and consequently the direction of its axis, varies very much.

The first case is taken from a lecture given by Graily Hewitt.

A young, unmarried lady previously in good health, having been dancing for five or six hours the night before, does not feel very well the next morning; and, in coming down stairs, she slips and falls two or three steps and receives a violent jerk. She experiences intense pain, and a few days afterwards on examination acute anteflexion is discovered.

Again, another case of Dr. Hewitt's.

A lady, four days after parturition, in the absence of the nurse gets out of bed and walks across the room to fetch something. She experiences sudden, severe pain and returns to bed. After a few months of continuous discomfort an examination is made and retroflexion of the uterus is discovered.

In these two cases there is the same cause; though in the case of the young lady it is the jolt of the fall, in the elder lady merely the slight jolting caused by the tottering walk of a weak woman. In the one case anteflexion, in the other retroflexion is produced; and I explain it thus.

In the young lady the uterus is high up, in its normal position; the axis is forwards, the fundus looking forwards, as in diagram No. 1. The jolt causes pressure downwards, and this, impinging on the upper and *posterior* surface of the fundus uteri, pushes it down, forwards, in the direction in which it was lying, and so causes anteflexion.

In the elder lady just confined, immediately she gets out of bed, from relaxation of all the tissues and increased weight of the uterus, the uterus becomes prolapsed and descends to the position represented in diagram 3. The pressure downwards, produced by the mere jolting of walking, impinging

Fig. 3.

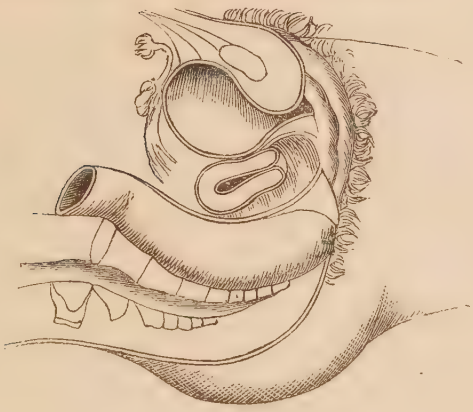


Fig. 2.

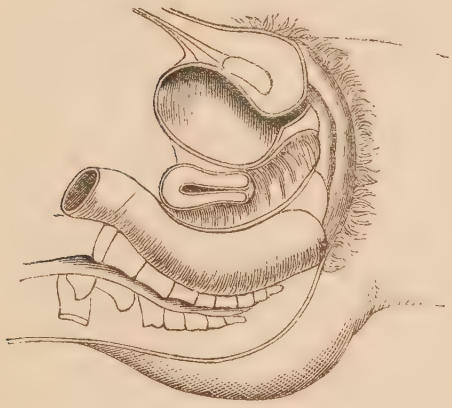
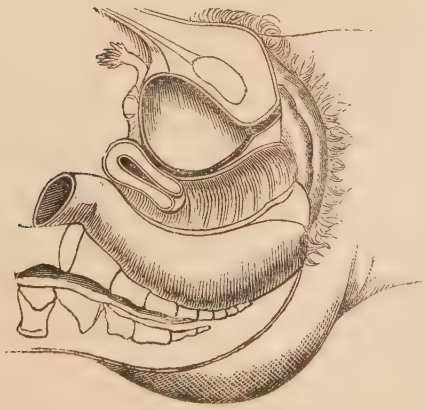


Fig. 1.



as you see it would here, on the *anterior* and upper surface of enlarged, subinvoluted uterus, is amply sufficient to force the fundus backwards and produce retroflexion.

Again, take the third case, where retroflexion is produced by habitual constipation in a weakly virgin. The tissues of the pelvis, vagina, uterus, with its ligaments, &c., have got relaxed from previous bad health; she suffers, most likely, from a leucorrhœal discharge; her bowels are constipated, and she strains a good deal every two or three days when the bowels act and has done so most likely for two or three years. This straining at stool is the exciting cause. It forces down the whole of the pelvic viscera time after time; the uterus has become enlarged and lost its tonicity from the derangement of the general health, and gradually comes to occupy a position either as in No. 2 or No. 3 diagram. At last a rather harder strain than usual on going to stool occurs, the fæces are suddenly expelled, the whole of the force is exerted on the fundus uteri, which, having now nothing to support it behind, is pushed back into the retroflexed position.

Now these cases might be repeated to any number; scarcely an out-patient day of mine passing without examples of such condition, presenting themselves.

Statistics, too, compiled without regard to these views, also support them, that is, anteflexions are much more common in young adults, and in the virgin state, and in those who have not had children; whereas retroflexion is much more common in older women, and in women who have borne children. That is, in virgins and in young adults, in whom there has been no or very little tendency to the production of any amount of prolapse, by enlargement of the uterus or relaxation of its tissue, by pregnancies, and various other conditions—in whom, in fact, the uterus retains its normal position high up in the pelvis—anteflexion is more common.

In older women, and especially in those having borne children, the uterus is larger and has been exposed to all the influences which tend especially to produce more or less prolapse; and in them retroflexions are more often produced.

Again, when retroflexions exist in virgins, the history of the case will almost invariably disclose the existence of leucorrhœa for some considerable time, indigestion, constipation, &c., and the patient is anæmic. All these conditions have gradually lowered her general health, and caused relaxation of all her tissues, some enlargement of the uterus and consequently some prolapsus, with its accompanying alteration in the direction of the uterine axis.

This explanation of the causation of flexions is hinted at in Thomas's work on 'Diseases of Women.' At page 327, when treating of prolapsus, he gives a diagram showing the alteration of the uterine axis in the various stages of prolapsus. Again, at page 401, when treating of retroflexions, he asks why endometritis with areolar hyperplasia so frequently results in retroflexion as well as in anteflexion; and he says that "it does so because the first effect of the increased uterine weight attending that disease is descent of the uterus. This relaxes the round ligaments, tends to bring the uterine axis in coincidence with that of the middle of the pelvis, and favours retroflexion."

According to Savage, he is certainly not right in thus speaking of the relaxation of the round ligaments; for in Savage's work, Plate XI, on the structures supporting the uterus and opposing its prolapse, he shows that neither the broad nor the round ligaments are at all stretched till very considerable prolapse has taken place. In describing Plate XI, fig. 2, Savage says that complete prolapse is effected only after the yielding of the pelvic reflexions of the broad ligament. This occurs from behind forwards, the round ligaments being the last to be put on the stretch.

I have not referred to these remarks of Thomas's before because these views of the causation of flexions were written in the beginning of this year, before I had seen his work. In no other book can I find any reference to this subject.

Pathology of Flexions of the Uterus.

In considering the pathology of flexions, we must divide

them into those produced suddenly in uteri previously healthy, traumatic flexions; and into those which have been brought on in people previously predisposed to them, in whom the flexion may be due to simply an increase of the predisposing causes; and we will consider the latter first, as the explanation of their pathology seems to me to be the easier.

All predisposing conditions, as we have just seen, tend to cause an enlargement of the uterus and a loss of its tone, with also a loss of all the uterine supports; allowing the uterus to sink in the pelvis and to get into such a position that the least extra force is sufficient to cause retroflexion.

In these cases the uterus is gradually pushed over, or, one might say, falls over into a flexed or verted condition, on account of the loss of tone of the whole of its tissue rendering it too weak to uphold the fundus uteri, increased as it is in its size, weight, and consistence.

It falls into the retroflexed position rather than the anteflexed, because its increased size and the loss of support, from the atony of the uterine ligaments, has allowed it to sink into the pelvis. As it has descended, the direction of its axis has changed from directly forwards to directly backwards, and any force applied to it from above, as in straining at stool, or lifting heavy weights, &c., impinges on the *anterior* and upper surface of the fundus, and so forces it into the retroflexed position.

Once pushed over, once flexed, it is unable to recover itself, and remains in its abnormal position mechanically and by gravitation; simply from the loss of that elasticity and tone which has been gradually brought about by the predisposing causes. There is no necessity to ascribe its position to pressure from above; its increased size and the atony of its tissue is sufficient.

Of course I am here referring to cases of simple flexion; cases where the uterine sound can be introduced easily (though curved) without pain; and where the flexion can be reduced without pain; showing that there are no adhesions keeping it flexed. Those cases where the flexion is bound

down by peritoneal adhesions, hardly come under the classification of simple flexions of the uterus.

In many cases of this kind no symptoms except those due to its prolapsed condition, that is, bearing-down pains and weight in the pelvis, exist; there is not even any dysmenorrhœa, though between the periods the flexion feels sufficiently acute to contract to a great extent the canal. But I believe the absence of pain during menstruation in these cases is due to the increased flow of blood to the uterus at this time being sufficient to straighten the uterus to a certain extent, and so reduce the constriction which exists between the periods. The uterus, in fact, becomes erect, and therefore straight, during the menstrual period.

The maintenance of the flexion I consider, therefore, in these cases to be simply mechanical; but in those cases where a flexion is brought on suddenly, by a sudden strain, &c., in a uterus previously healthy (traumatic flexion), what keeps the uterus in its flexed position?

In the cases we have just discussed we have seen that it was due to loss of tone of uterine tissue; but in these cases no loss of tone has occurred. Up to the time of the accident the patient was perfectly well, and had not suffered in any way from any uterine trouble.

When it is retroflexed it is explained, by some, by the pressure of the superincumbent intestines, which before were behind the uterus in Douglas's pouch, and so helped to maintain it in its normal position; but which, by the sudden strain, were forced from there by the flexed uterus, and have since rested on the uterus, and so prevented its returning to the normal position.

Allowing this to be the case, for the moment, in cases of retroflexion what is the cause of anteflexion, produced suddenly, being maintained? Here we have at all times the weight of the intestines on and behind the uterus; but to compensate this there is the bladder before, tending by its occasional filling to push up and replace the uterus.

Again, the tendency of the uterine tissue is always to recover itself and to return to its normal position, immediately

the offending cause is removed. There is in many of the cases no loss of tone, no congestion, and consequent enlargement of the fundus uteri to explain it; for these accidents with these attendant results may occur in women previously healthy and who have never suffered, as far as they know, from any uterine ailment, and yet the uterus remains after these accidents in a flexed condition. Inflammatory adhesions have not had time to form; and therefore in the first early stage the flexion cannot be maintained by them.

In these cases, then, as in the others, it seems to me that the flexion must be maintained by loss of tone of the uterine tissue, and in these traumatic cases the loss of tone is, I believe, due to some rupture of the uterine fibres, accompanied by a more or less extensive effusion of blood into the uterine tissue; the extent of the rupture, &c., depending entirely on the severity of the cause. These accidents, I believe, cause a bruising of the uterine tissue and rupture of some of its fibres and blood-vessels, much in the same way as they may affect the other muscular and fibrous tissues of the body; and thus they completely destroy for the time being the elasticity of the uterine wall, and consequently its power of righting itself.

The symptoms which accompany these accidents, such as acute pain, increased by movement of any kind, also point to such an injury having occurred. After accidents of this kind the patient is always more or less severely ill for some time; that is, the injury has set up a certain amount of inflammation, metritis. As this subsides the ruptured fibres heal; and, unless the uterus has been restored to its normal position, and this very rarely happens, from the patient not being seen soon enough, or when seen from there being too much constitutional or local disturbance present to advise mechanical interference, they heal in such a way as to maintain the existence of the flexion; and as time goes on some contraction of this newly-formed tissue generally takes place and causes the flexion to become still more marked.

I have not, I am sorry to say, any pathological specimens to show as a foundation for this theory of the maintenance of

acute flexions; and, taking a uterus in one's hand as it is met with after death, it may seem impossible that such a tough though pliable organ could be injured to such an extent by such accidents. But it must be remembered that during life, and especially at the menstrual periods, the condition of the uterus is very widely different to that seen after death; that at all times, though it is a soft and pliable organ, yet it possesses a certain amount of rigidity which renders it liable to be bruised by sudden, sharp strains; and that during menstruation, when distended and engorged with blood, when in fact in an erectile condition, it is yet still further predisposed to such injuries.

One clinical point which makes me believe in such a rupture occurring is, that in numerous cases the fundus is fixed in its relation to the cervix: I mean that by the finger you cannot straighten the uterus; pressure on the fundus causes movement of the cervix, and *vice versâ;* and attempts to reduce the uterus by means of the sound give great pain. At the same time the uterus altogether is not fixed in the pelvis. All this, I think, points to the fact that there exists some alteration in the uterine tissue itself, maintaining the flexion.

In the absence of any fresh pathological specimen I bring forward the following fact; that is, that in uteri flexed for some time there has been found post-mortem atrophy of the uterine tissue at the flexed part; chiefly on the concave side, but also on the convex side; showing that degeneration of tissue has taken place. This has been demonstrated microscopically by Virchow and others. Now, atrophy having been proved to exist at the point of flexion, may this not have originated in such an injury to the uterine fibre as I have described as caused by an accident?

In conclusion, let me again say that I have not brought these views hastily before the Society; but that for the whole of the past year I have been considering and discussing them in my out-patient room at the Soho Hospital; and the favourable reception they have met with there has tempted

me to bring them here, that they may be more thoroughly and severely criticised.

I beg to thank the Society for their kind attention.

Dr. Graily Hewitt had listened with much pleasure to Dr. Squarey's paper, and he thought the explanation given by the author of the fact that strains and accidents sometimes produce anteflexion, and at other times retroflexion of the uterus, ingenious and satisfactory, and that Dr. Squarey had supported those views in a very able manner. In reference to a suggestion made by the author, that laceration of the uterine muscular tissue actually sometimes occurred, and that this was the first step in the atrophy of the wall found in some cases of flexion, he was disposed rather to look on this atrophy as the result of the pressure produced by the flexions; pathological facts were wanting to support the author's hypothesis in that particular.

Dr. Routh said he did not agree with all Dr. Squarey's conclusions, although he could not but admit them. First, in regard to anteflexions. They were more common in young unmarried people, not necessarily because the uterus was high up, but because in these the normal uterine position was one of partial anteversions, converted at once into anteflexions by fatigue, long walks, falls, &c. Anteversions occurred also in uteri high up. Retroversions were more common in older women, not necessarily because the uterus was low down, but because in cases of uninvoluted or congested uteri (the fundus being the part chiefly top heavy, and the patients generally selecting to rest themselves in position on the back) the top heavy organ naturally fell backwards. These flexions often depended also on the position taken by patient. He had seen that by urging a patient to lie not on her back but on her belly a retroverted organ became anteflexed, and yet in both the uterus was low down; but it was in favour of Dr. Squarey's view (and which could be realised in most cases if watched from day to day) that the uterine congestion once relieved by leeching and other depletive measures, and become lighter, the retroflexed organ might become anteflexed. But as women grew older, whether married or not, and in whom uterine congestions occurred, anteversions were not uncommon, although retroflexions most complete, and yet in both the uterus was low down.

Dr. Heywood Smith said that although the experience of others seemed to be different, yet in a large out-patient practice he had found that among the unmarried and sterile anteflexion was the most frequent flexion; and though cases of retroflexion

were found in the nulliparous, it was nevertheless comparatively rare.

Dr. BANTOCK was not prepared to accept the explanation of the causation of flexions of the uterus offered by Dr. Squarey. He had seen a considerable number of cases of retroflexion at all periods of menstrual life without presenting the necessary conditions. He agreed with Dr. Routh in assigning the relative greater frequency of anteflexion to the natural tendency to that condition in the young subject. He could not at all accept Dr. Squarey's theory as to the cause of traumatic anteflexion. A force applied to the posterior aspect of the fundus uteri would necessarily cause rupture of tissue (assuming such an accident to be possible) on the concavity of the bend, *i. e.*, on the posterior aspect of the junction of body and cervix. The swelling from effused blood, &c., would doubtless at first cause the uterus to bend forwards, but the subsequent atrophy of ruptured muscular fibre and contraction of fibrous tissue would reduce the primary displacements, and lead to the opposite condition, the thinning of the concave aspect, described as existing in anteflexion being necessarily on the opposite side.

The PRESIDENT, after complimenting the author upon his first and very carefully written paper, thought that hardly sufficient stress had been laid upon the action of the bladder in the production of retroflexion. He pointed out that the antagonists to the backward displacement of the fundus by a full bladder were the round ligaments. If these were relaxed or overstretched, and the attachment of the neck of the uterus to the base of bladder, and by it to the symphysis pubis remained firm, then the distension of the bladder acting for a long time, as in women who hunted, or were unable from other circumstances to micturate, would tend to cause retroflexion. This effect would be added to by the straining of constipation or other exertion.

Dr. SQUAREY replied, in answer to Dr. Graily Hewitt, that he thought that atrophy of tissue from pressure at the point flexed was more likely to occur if the tissue had been injured at that part than if not. Atrophy had been proved to exist at this spot, but whether it originated in healthy or bruised tissue had not been proved. To Dr. Murray,—that this paper was not intended to discuss the relative frequency of anteflexion and retroflexion, at the same time his experience quite agreed with what Dr. Murray stated, retroflexions being much the most frequent; but when a retroflexion occurred in a young unmarried woman, the history of her case would always reveal the existence of predisposing causes to flexions, as anæmia, constipation, leucorrhœa, &c., all of which tended to cause a certain amount of prolapse of the uterus, with the consequent alteration in the direction of the uterine axis. In answer to Dr. Routh,

Dr. Squarey said that he did not for one moment believe that lying on the back had anything to do with the production of retroflexion. He did not believe that it alone would ever cause it, however much a woman might be predisposed to flexion. Again, with regard to pressure downwards by the intestines, he did not believe they exerted pressure to a sufficient extent either to cause a flexion, or to maintain one after it had been caused; always containing more or less air, he believed the intestines to be almost self-supporting. And in answer to Dr. Braxton Hicks, he stated that the round ligaments being inserted into the cellular tissue over the pubes, he did not think, as this was not a fixed point, that occasional distension of the bladder would cause stretching of them to such an extent as to favour retroflexion.

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